

3·2·1·Contact®



WHIRL KIDS
 THE NEW WAVE IN
 SKATEBOARDING

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Campbell's Can-Do Puzzle Page

Something fun to do for
all kinds of Campbell's Kids™

What kind of Campbell's Kid™ are you?

1.

Are you a tricky kid?

By moving only one can at a time, turn this pyramid into an upside-down pyramid in just two moves.



4.

Are you a speedy kid?

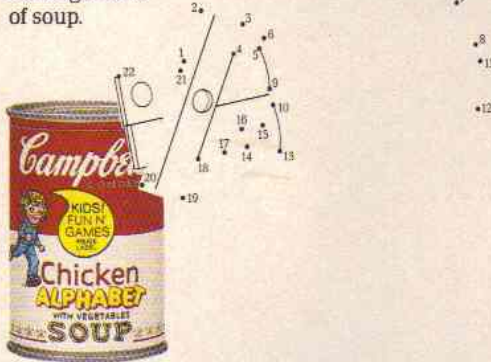
See how long it takes you to unscramble the name of this favorite Campbell's® Soup. Less than a minute and you must be hungry!



2.

Are you an artistic kid?

Connect the dots to draw the first thing you need for making a bowl of soup.



5.

Are you a sharp kid?

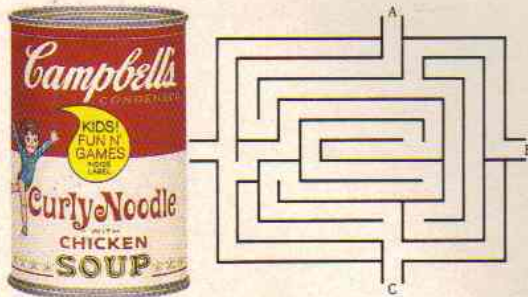
Only two of these cans are exactly alike. See if you can pick them out.



3.

Are you an amazing kid?

Which path will get you through the maze to the can of Campbell's® Soup?



6.

Are you a clever kid?

Find three things wrong on this can.



1. _____

2. _____

3. _____

**M'm! M'm!
Good!®**

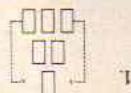


ANSWERS

1. **SOUP** misspelled, wrong color balloon (should be yellow), chicken instead of Campbell's Kid.

2. It's a can opener.

3. C



4. Chicken Noodle-O's®

5. Cans B and H

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Winner: National Magazine Award
General Excellence



Award Winner: Feature Category

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COVER: © Chuck O'Rear/West Light



ILLUSTRATION BY RON LEFKING

Good Sweat

Humans sweat to keep cool. It's the body's way of keeping its temperature down. But sometimes the palms of our hands sweat when

we're nervous, or when we do certain kinds of exercise. Why?

David Robertshaw, a scientist at Cornell University, tried to answer this question by studying dogs.

"Dogs pant to reduce their body heat," Robertshaw told CONTACT. But they also sweat from their paws. This sweat keeps them from slipping when they run—by increasing friction.

"Humans have similar sweat glands in their palms," said Robertshaw. This may have been left over from the days when humans were swinging on vines. Sweaty palms helped early man grip the vine, just as the sweat on dogs' paws helps them grip the ground when they run.

But palm sweating is also useful to humans today. Sweating improves the sense of touch by keeping the skin soft and making the palm more sensitive.



ILLUSTRATION BY CAMERON GERLACH

Now Hear This!

Too much loud rock music can be harmful to your ears. Just ask Kathy Peck. She is a rock musician who lost 40% of her hearing. Now Kathy wears a hearing aid.

"My band opened for Duran, Duran. The next day I could feel a huge hearing loss," Kathy told CONTACT.

Kathy Peck is only one of many musicians who suffer from hearing loss. Some, like Commander Cody, suffer from a constant ringing in the ears. There is no cure.

Kathy Peck feels that losing her hearing is a high price to pay for rock music.

She started a group called HEAR, Hearing Education Awareness for Rockers. "We want people to learn how to protect themselves. We encourage people to use earplugs at concerts. We suggest that musicians take more breaks," Kathy told CONTACT.

How do you know when music is too loud? "If you're at a concert and you have to shout to be heard, you should be wearing earplugs," Dr. John House told CONTACT.



PHOTO: SLICK LAWSON/PEOPLE WEEKLY © 1988 TIME INC.

He Went Thataway: Vernell Sellars is sure that two hoods are better than one. So he put together the two front ends of a car. The 16-foot car has two engines—one for each end. The two engines share a fuel tank.

On each hood is a plastic sign that proudly says, "Vernell's." Why make a car you can drive from either end? Vernell's answer: "Why not?"

Winging It

When a male cowbird sings, the female cowbird lets him know what songs she likes—without making a sound. If she likes his song, she lifts her wing.

Meredith West, a scientist at the University of North Carolina, and her husband, Andrew King, a scientist at Duke University, studied the birds for five years.

Cowbirds in different parts of the country sing different tunes. But when the scientists put male cowbirds from North Carolina with female cowbirds from Texas, the males learned to sing Texas cowbird songs. The scientists were puzzled. How did the male birds learn these new songs if the females didn't make a peep?

After videotaping the birds, West and King found that the females would flash a wing when they liked a song. The males would repeat the part of the song that the females liked.

Hey, not bad. But do you guys know any Bon Jovi?

ILLUSTRATION BY DICK DANIELS



Pinball Wizard

You're riding in a four-passenger "car" on a huge tilted surface. Your car bounces off walls and posts. You're in control of giant flippers that knock your car back up the hill.

Sound weird? By the year 2001, this ride might be at an amusement park near you. It will make you feel just like the silver ball in a pinball machine.

It's called "Mega Ball" and it's being developed by a company called Intamin. You'll be able to control your ride, like you can in today's bumper cars. But, you'll also get the thrill of a scary ride.

If you hit the flipper at the right time, you can have a longer ride. And you don't have to put in another quarter!

Bruise Patrol

Ever bite into the bruised part of an apple? Yuck! Somewhere between the farm and the store, that apple got knocked around. But when?

Two scientists, Roland Zapp and Galen Brown, created a special computer to find out. The computer travels along with a box of apples on its trip from farm to store. It even looks like an apple!

"It's a miniature computer that records the location of the impact and the time of the impact," Zapp told CONTACT. Zapp and Brown can then tell when and where the apples were bruised...and who was responsible.

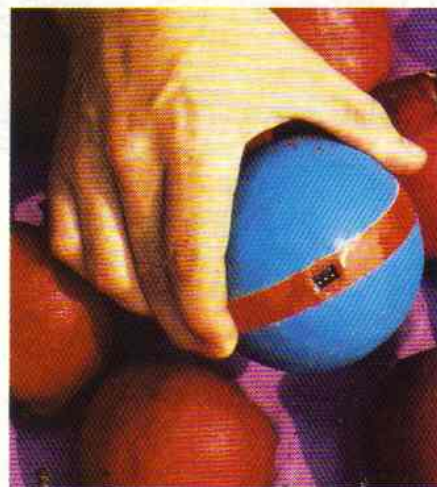


PHOTO © AGRICULTURAL RESEARCH SERVICE—USDA

So What's New?

You tell us and you'll get a nifty CONTACT T-shirt—if we print your story. Send us any science story from the news that you think our readers would like to know about. (Be sure to tell us your T-shirt size and where you heard the story.) Send to:

TNT / 3-2-1 CONTACT Magazine
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New York, NY 10023

PHOTO © JOHN TROTTER/ANIMALS ANIMALS



Factoids



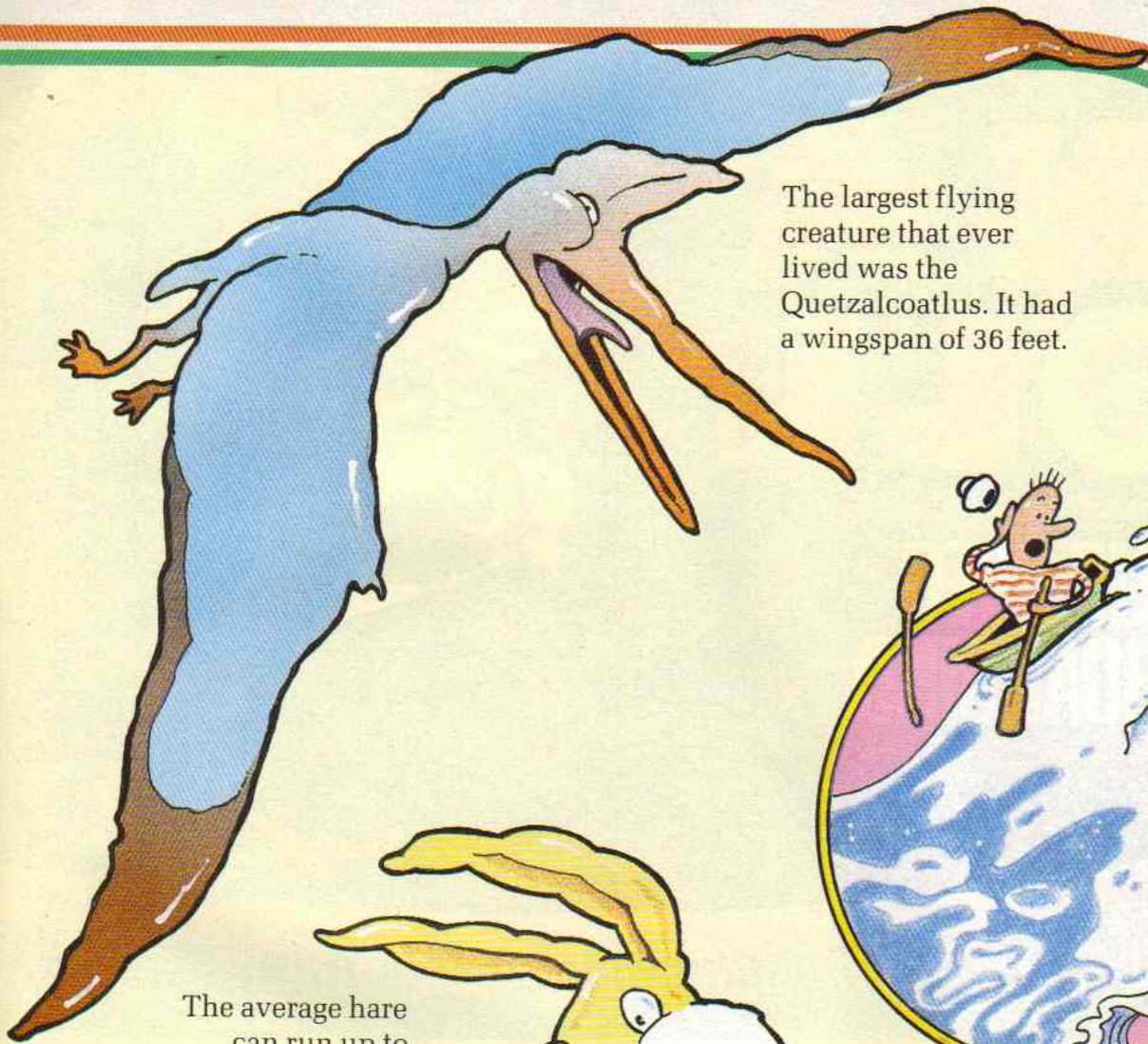
An ocean sunfish
can lay 300 million
eggs in one year.



You use 72 muscles
to speak one word.



In an average lifetime,
a person will walk
70,000 miles.



The largest flying creature that ever lived was the Quetzalcoatlus. It had a wingspan of 36 feet.



The highest waves ever recorded were 1,740 feet high.

The average hare can run up to 45 miles per hour. That's 250 times faster than the average tortoise.



ON A ROLL

KIDS FLIP OVER SKATEBOARDING

by Michael Dayton



What's a hot sport that is gaining fans as it rolls from coast to coast? Skateboarding!

Last year, U.S. skateboard companies sold more than \$300 million worth of boards, parts and clothes. One magazine reports 20 million young people in the U.S. own or ride a skateboard.

Skateboarding began in the mid-1960's as a fad. It died down and picked up again in popularity in the late 1970's. Then it held steady until a couple of years ago, when it took off once again.

"The sport began as a take-off on California surfing," explains skateboarder Derek Travers, 16, of New York City. "Just as in surfing, a skateboarder can balance on a board and perform tricks. But unlike surfing, it's great for people who don't live near a beach!"

For people without a beach, or without a surfboard, the place to go may be a skateboarding park, with concrete ramps, tunnels and obstacles. "The parks offer a safer place to prac-

tice the sport than on city streets. This helps to reduce accidents," Steve Landes of the National Safety Council, told CONTACT.

According to Mr. Landes, some 81,000 skateboarding accidents are reported each year. These involve anything from cuts and bruises to broken bones. This has led some cities to ban skateboarding on streets with lots of traffic.

To avoid accidents, smart riders wear helmets, knee pads, and other safety gear.

Safe and Serious

Safe skateboarders consider skateboarding to be a serious sport. Skateboard contests are held in Japan, Australia, and Spain, as well as in Canada and the U.S. Winners often take home prizes of \$5,000 to \$7,500.

The sport is so new that young teens can rise quickly to the top against much older riders. Tommy Langley, 13, of Raleigh, NC, is one of the younger riders. Last year, Tommy won first place in three contests.

PHOTO © JIM LOUBAT/WEST LIGHT

Right: Skateboard parks are springing up from coast to coast. Most parks require the use of proper clothing and equipment for skateboarders.

Below: Performing tricks are part of the skateboard "magic."

PHOTO © CRAIG AURNESS/WEST LIGHT

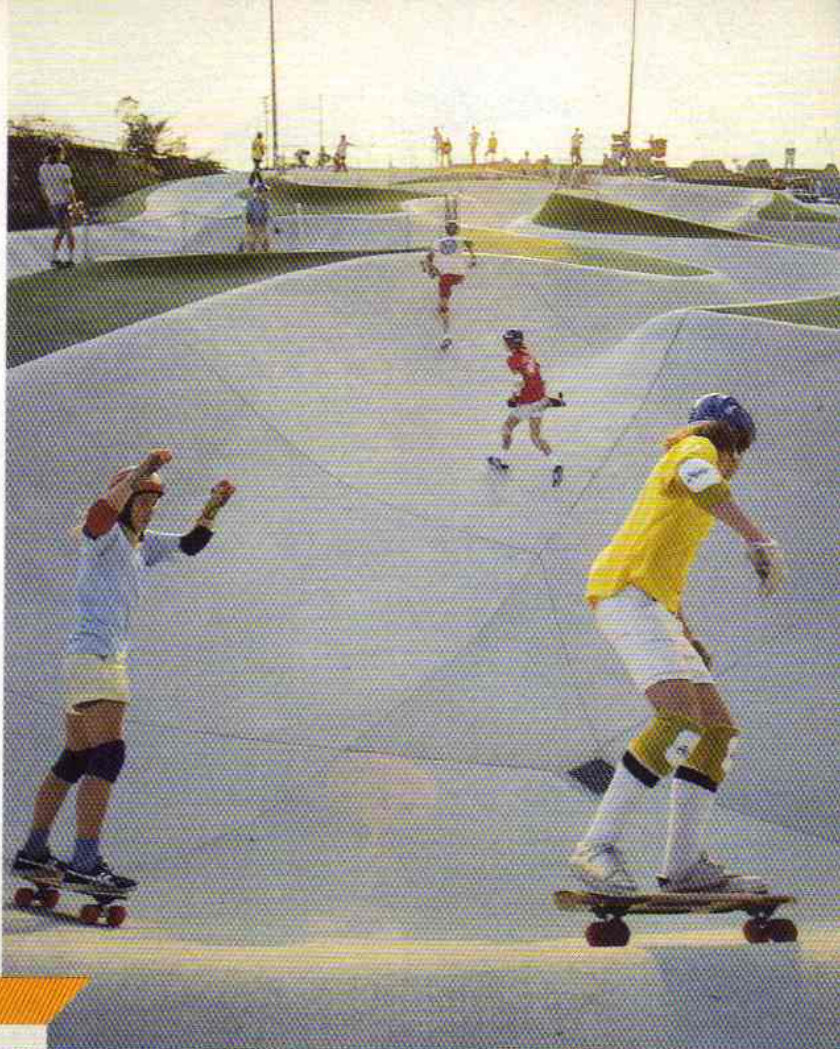


PHOTO © GIULIANO BEVILACQUA/FOCUS ON SPORTS

"I just want to get better and better because I go up against some tough competition," Tommy told CONTACT. "At the last contest, I was going against people who are 18 and 19. I beat them and won first place."

Among Tommy's tricks are a handstand, a one-footed "360," in which he spins the board in a full circle, and a "pogo," where he jumps up and down with the board.

"I practice up to three hours a day to perfect my moves," Tommy explains. "Someday I'd like to turn professional."

Old Rollers

The first skateboard was probably created when someone snapped a pair of old roller skates in half and tacked the wheels to a flat board. But those early boards had one major problem. They still used skate wheels made from metal or hardened clay. Those wheels didn't work well on bumpy roads or sidewalks. They stopped abruptly when they hit a small pebble, sending the rider for a spill.

In 1973, a California surfer named Frank ➔



PHOTO © FOCUS ON SPORTS

are now made of aluminum—a strong, light metal. Though other materials have been tried, most of the boards are still made of wood.

Smith says: “People have tried to improve on wood. Some boards were made with foam and fiberglass. But it’s basically Canadian maple.

“Skateboards take so much abuse and they’re in close contact with the pavement. Wood just seems to hold up better,” Smith notes.

Science in Motion

Today, four riding styles are popular: street riding, slalom, ramp-riding and freestyle. In slalom, riders weave in and out of a measured course as quickly as possible, much as skiers do in downhill skiing. In freestyle riding, skaters use their boards to perform various tricks such as handstands.

Left: A rider uses his board without proper clothing. That’s one reason why accidents happen.

Nasworthy came up with a brilliant idea. He put a new type of wheel on a skateboard. The wheels Nasworthy used were made of urethane, a type of soft plastic. They absorbed shock and rolled easily over rough asphalt streets.

“On pavement they were great,” says Jack Smith, a skateboarder who began riding in 1974. Smith now manages a skateboard company. “They didn’t stop when you hit a pebble, they had great traction and they were fast.”

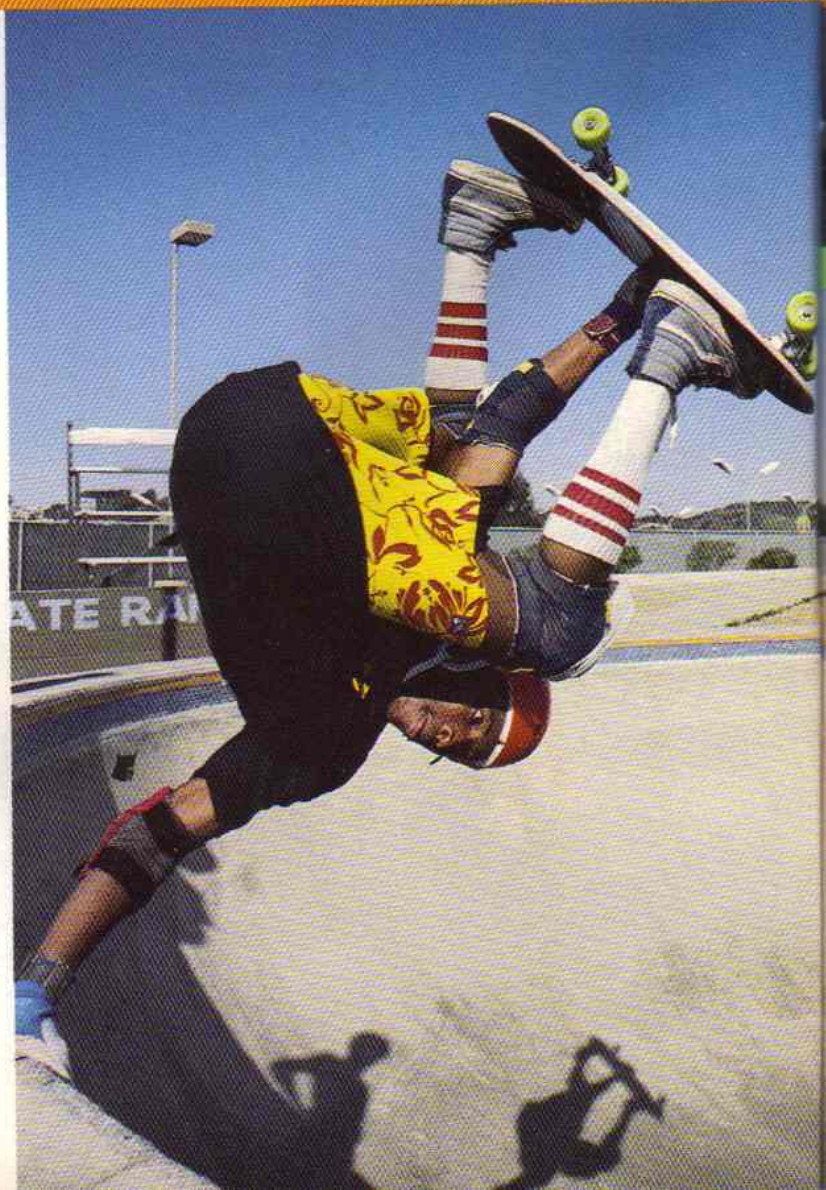
Kris Koprowski, who works for a wheel manufacturer, says the wheels breathed new life into the sport. “It has been the biggest change in the last 15 or 20 years,” he notes.

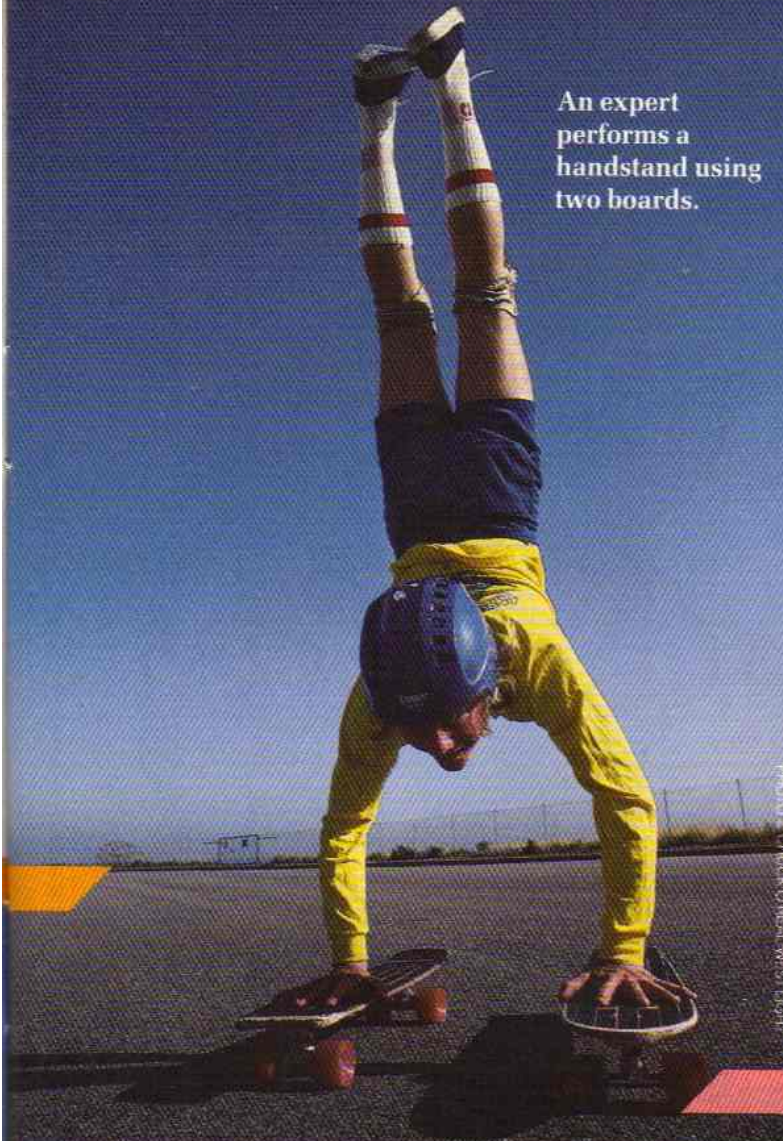
Koprowski says urethane wheels come in different hardnesses. “Very hard wheels are used on skateboard ramps and concrete streets because these surfaces are smooth. We also have large, soft wheels for use at high speeds over rough surfaces. These wheels help cushion the bumpy ride.”

During the 1970’s, skateboard companies made several other changes in skateboard design. The axle was lengthened several inches. The board was also widened and dished out slightly.

“This made the board more stable and easier to turn,” Smith says.

Only a few other changes have been made in the basic design. The wheel supports, or trucks,



A skateboarder wearing a blue helmet, yellow long-sleeved shirt, and blue shorts is performing a handstand on two skateboards. The skateboarder is upside down, with their legs straight up in the air and their hands on the decks of two separate boards on a paved surface. The background is a clear blue sky.


An expert performs a handstand using two boards.

The most dramatic event in a contest is ramp-riding. Many ramps are shaped like the inside of a bowl. Ramp riders hurtle down one side of a ramp and up the other, launching themselves into the air. Once airborne, a rider turns himself in the air and continues riding down the ramp.

Some ramps are as steep as a wall. Yet skateboarders can actually climb the wall without falling off their boards. How? Scientists say they are using *centripetal force*. Centripetal force is the inward push you feel when you go around a sharp curve in a car. The force may actually pin you to the door or seat.

The curved ramp skateboarders use is shaped like part of a circle. When a skateboarder travels fast enough, the centripetal force pins the rider and the board to the ramp—even though the rider may be headed toward the sky!

Some riders set speed records on their boards. One rider was clocked at 53.45 miles an hour which may be a world record. And Jack Smith actually skateboarded across the U.S. He averaged more than 100 miles each day.

Will skateboarding replace the car or the bicycle as a means of transportation? Not likely. But for people like Jack Smith, it's the only way to travel! 

A skateboarder wearing a yellow shirt, white shorts, and a blue helmet is weaving through a series of orange cones on a paved surface. The skateboarder is leaning forward, with their body angled to navigate between the cones. The background is a light-colored wall.

Left: Centripetal force keeps the board firmly attached to the rider—and vice-versa!

PHOTO © CRAIG ALMNESS/WEST LIGHT

Right: Weaving in or out of obstacles, or just jumping over them, makes skateboarding a daring sport.

PHOTO © RICK DOYLE/FOCUS ON SPORTS

Any Questions?

by Renée Skelton

Why do people laugh when they get tickled?

You're yelling. Gasping for breath. Rolling on the floor. Laughing may be a way your body releases tension when someone won't stop tickling you. But scientists aren't really sure why tickling makes people laugh.

Laughing is just one reaction. Lots of other things happen automatically when you get tickled. Your body tenses. Your blood pressure goes up. Your pulse races. Tickling excites your nerve endings. Your body acts as if it is in danger. You try to get away from the tickler — fast!

But there are times when people *don't* laugh when they are tickled. Try tickling the bottoms of your own feet. It doesn't make you laugh because you know exactly where you will tickle and when you will stop. You can't fool yourself, so your body doesn't get tense.

Some people are more "ticklish" than others. But there's just one reaction when tickling stops. What a relief!

Question sent in by Dan Jurgella, Stevens Point, WI.



ILLUSTRATIONS © BOB DELBOY

What is money made from?

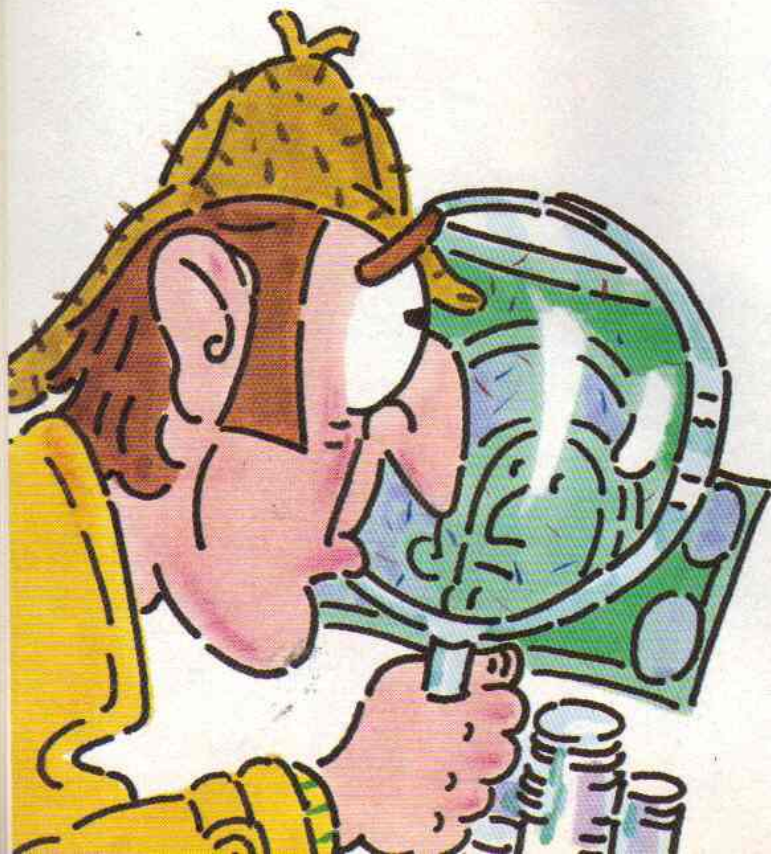
Maybe you didn't know it. But your copper penny isn't solid copper. And your silver dime has no silver in it at all. Today's coins are made from metal mixtures that are cheaper than solid silver or copper.

Look closely at new dimes, quarters and half dollars. The coins have three layers. The inner layer is copper. The outer layers are $\frac{3}{4}$ copper and $\frac{1}{4}$ nickel. And pennies are now made with zinc, which is a cheaper metal, and a thin copper coating.

Paper money is made of special paper. Only the U.S. government has the secret "recipe." But we do know it's $\frac{3}{4}$ cotton and $\frac{1}{4}$ linen. It also has tiny red and blue fibers in it.

The government uses lots of this special paper. It prints \$20 billion worth of paper bills a year. Now that's making money!

Question sent in by Kelli Davis, Mineral Bluff, GA.



Do you have a question that no one seems able to answer? Why not ask us? Send your question, along with your name, address, and age, to:

Any Questions?
3-2-1 CONTACT
P.O. Box 40
Vernon, NJ 07462

How do chameleons change color?

Chameleons can turn brown, black, yellow, green or white. Four layers of colored cells under their skin make up these shades. The colored cells change position and size. That changes the skin color.

Here's how it works: The first layer has red and yellow cells. The next has blue cells. The third layer is white. Under them all is a brown layer.

Different cell combinations make different colors. For example, if blue cells move under yellow ones, the chameleon looks green.

You might also be wondering why a chameleon changes color. They change color when they're getting ready to fight or when they're scared or when the temperature changes. But it isn't true that they change color just to blend in with their surroundings. Sometimes it just works out that way.

Question sent in by Loretta Rizzo, New Berlin, PA.



How does food give people cavities?

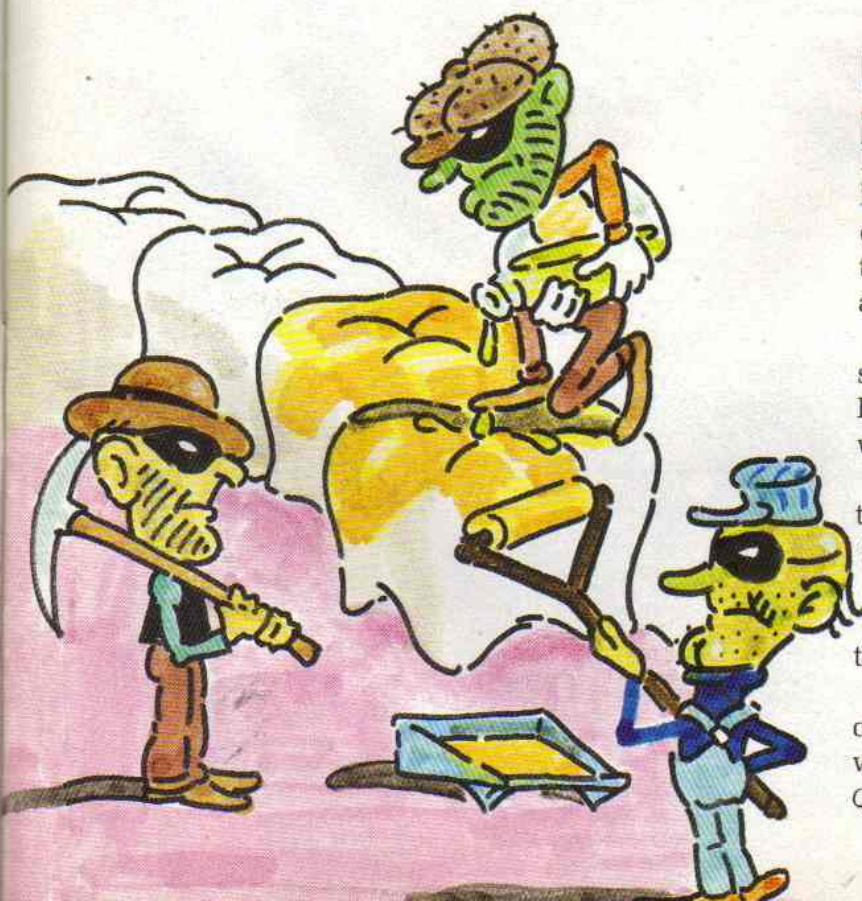
Food only helps give you cavities. (Cavities are holes in your teeth.) Bacteria does most of the dirty work. Bacteria and food get stuck on your teeth when you eat. If you don't brush, they form a yellowish film called plaque (PLACK).

The bacteria in plaque love to eat sugars and starches. As the bacteria eat, they give off acids. It's these acids that dissolve your teeth. That's why people say sweets cause cavities.

First, the acids eat through the outer layer of the tooth called the enamel. If you don't fill in the cavity early, the acids eat into another hard layer of the tooth called the pulp. This is where your nerve endings are. When the cavity reaches these nerves—ouch! A toothache.

Of course, you can't stop eating food to stop cavities. But you can brush and floss often. That will keep cavity-causing bacteria hungry.

Question sent in by Amy Rosenberg, Dayton, NJ.



OZONE

SAVING EARTH'S SOLAR SHIELD



by **Melissa Kim**

- Filled with scientific equipment, an ER2 jet blasts upwards. The ER2 is a special plane that can fly thousands of feet higher than a regular plane. This ER2's destination: 15 miles above the North Pole.

- In Scotland, Greenland, Norway and other countries, scientists release special helium balloons. The balloons carry measuring devices and zoom up to heights of over 20 miles.

- Over 20 thousand miles above the Earth, weather satellites look down at the atmosphere above the North Pole and beam back data.

Why all this attention on the air above the North Pole? Because there are signs that the atmosphere there may be in serious trouble. The ozone layer above the Pole seems to be disappearing—fast.

Who Needs Ozone?

Until recently, many people had never even heard of ozone. But without ozone, there would be no life on Earth. Ozone is a type of natural gas that lies high up in the atmosphere. It blocks out harmful rays that come from the sun.

For years, human-made pollution has been eating up the ozone layer. Now, more and more of the sun's harmful rays, called ultraviolet rays, are getting through the ozone layer and reaching the Earth.

Why is that so serious? Ultraviolet, or UV, rays can give people skin cancer, and can also hurt plants and animals.

Fortunately, scientists discovered the problem and have called the world's attention to it.

Now governments and industries are acting to stop the production of the pollutants that harm ozone. It may not be too late to make things better.

An Invention That Seemed Great

The ozone layer has been around for millions of years. But its troubles didn't start until 1930. That's the year a scientist named Thomas Midgley invented a new kind of chemical, the chlorofluorocarbon (CHLOR-oh-FLOOR-oh-CAR-bon).

(If you think that's hard to say, you're not

alone. Most people call the new chemicals "CFCs" for short.)

At first, CFCs seemed harmless, and companies kept finding new ways to use them. They used them to make foam products like pillow cushions, plastic egg cartons and take-out food containers. They used them in spray cans, and as part of the cooling system in air conditioners and refrigerators.

Companies began to make hundreds of millions of pounds of CFCs every year. In the process, a lot of CFC gas was released into the air. "CFC gas may be released when a product is made, or when it's discarded," explains David Doniger. He's part of a group that's trying to stop ozone damage.

According to Doniger, when an old air conditioner gets crushed by a bulldozer at the town dump, CFC gas leaks out. "The same thing happens with plastic egg cartons. Whether it's squashed in a trash compactor or burned in an incinerator," CFC gas is released.

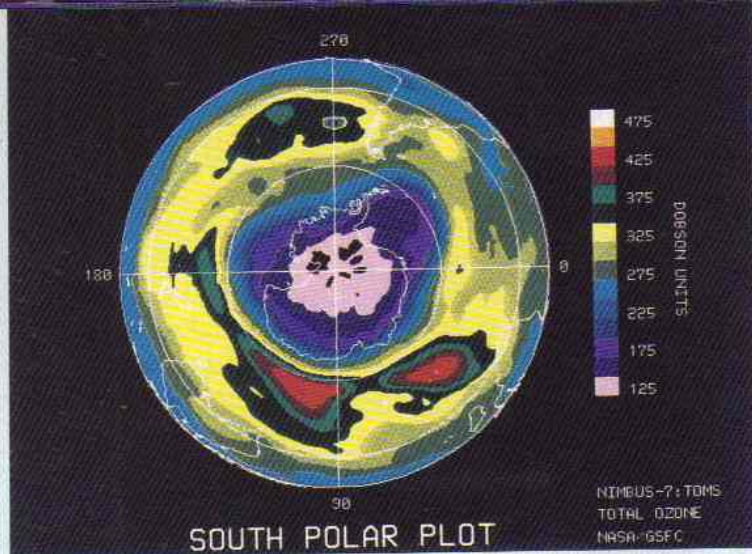
What Goes Up...

No one knew that CFCs in the air would cause trouble. Then it turned out that the CFC gas we've released on Earth is slowly rising. And in the early '70's, a California chemist named ➔

Right: Pilot James Burrilleaux will have to squeeze to fit inside the ER2's tiny cockpit. He'll be flying extra high—right up into Earth's ozone layer.



PHOTO: NASA



Sherwood Rowland made a frightening discovery. When CFC gas reaches the upper part of Earth's atmosphere, it attacks and breaks down the ozone layer.

To scientists, the answer was simple. Stop putting CFCs into the air. But CFCs are a multi-million dollar business. Companies weren't willing to give up on CFCs so easily. Around the world, companies ignored scientists' warnings. A few countries, including the U.S., banned the use of CFCs in spray cans. But the use of CFCs continued to increase, worldwide.

Then, in May, 1985, British scientists in Antarctica made another shocking discovery. In the atmosphere over the South Pole, a hole the size of the United States had opened up in the ozone layer. After careful research, scientists found the culprit—CFCs.

A New Era?

The ozone hole over Antarctica finally shocked the world into action. Through the United Nations, more than 40 countries met and agreed to cooperate with each other to limit the making of CFCs.

Kevin Fay is a spokesperson for a group that

represents the CFC industry. He told CONTACT that CFC-makers are searching hard for a chemical to use instead of CFCs. "Enough is enough," says Fay.

Makers of CFCs now promise to stop by the end of this century. But people like David Doniger say that's not soon enough. "Most of the CFC gas we've put into the air since 1930 hasn't even gotten to the ozone layer yet," he explains. "It's still rising."

And scientists have found that the ozone layer is shrinking faster than they predicted. U.S. and Soviet scientists are still in the process of collecting data, but the North Pole looks like another ozone trouble spot.

So what's the good news? Chris Rice works for a branch of the U.S. government that deals with problems in the environment. According to Chris Rice, the ozone problem marks "the beginning of a new era."

For the first time in history, all the world's countries are working together to solve one of Earth's problems. In that sense, the ozone crisis could turn into one of Earth's biggest success stories. **END**

PHOTO © ERIC HORAN/BRUCE COLEMAN INC.

Right: Scientists have long warned that sunbathing can cause skin cancer.

Now that Earth's ozone is thinning, sunbathing has become even more dangerous.





Left: When bulldozers crush certain products, such as air conditioners, a dangerous gas is released. This gas floats up above the clouds and harms the ozone layer.

What Can I Do?

David Doniger works for a company that's trying to make people aware of the ozone crisis. His advice for kids who want to help the ozone layer is: Don't buy products that use CFCs.

"For instance, Crazy Strings for some reason use CFCs. So we ask kids to use real confetti instead."

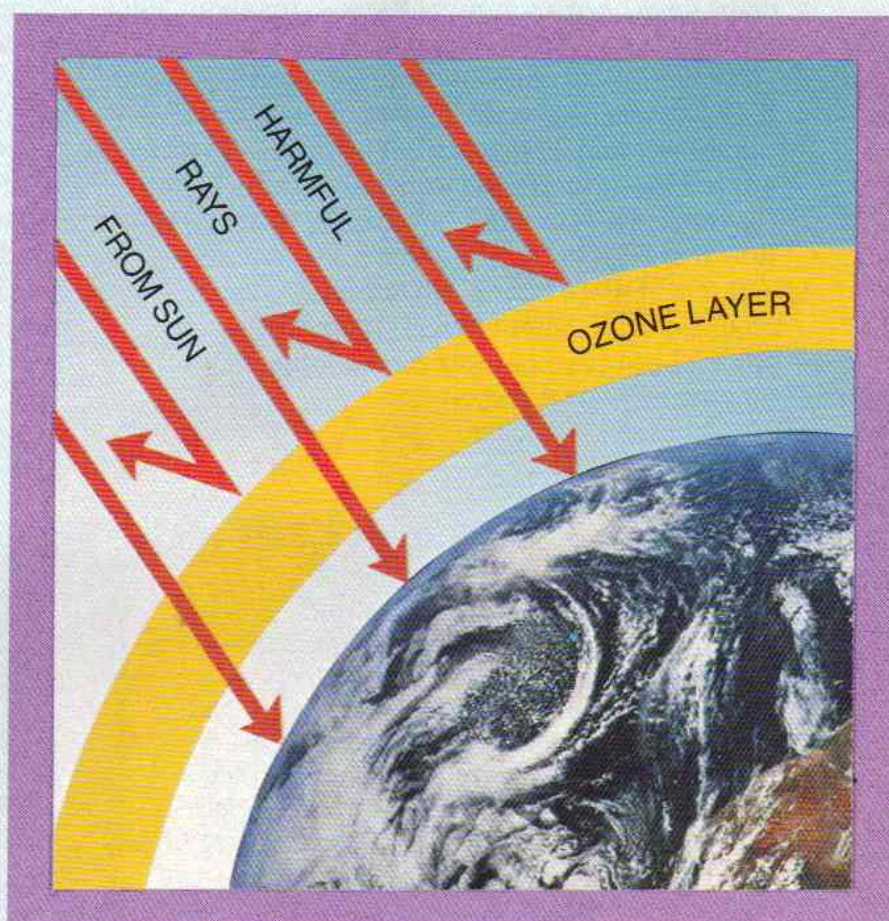
But Doniger admits that products like Crazy Strings cause only a tiny part of the ozone problem. What else can you do? "Write to your Senators, the President, and the companies that make CFCs. Tell them that you're concerned!"

Doniger's company publishes a free booklet called, "The Citizen's Guide to Saving the Ozone Layer." The booklet lists the names and addresses for companies that make CFCs. It also comes with a wallet-sized card that reminds you what products not to buy at the supermarket. Adds Doniger, "Don't leave home without it!"

For a free copy, write to:

Natural Resources Defense Council
122 East 42nd Street
New York, New York 10168

Below: Most dangerous rays from the sun bounce off the ozone layer and don't hit Earth. But as the ozone layer thins, more and more harmful rays get through.



It's Alive!

PREHISTORIC CREATURES STILL ROAM THE EARTH



by Elizabeth Keyishian

If you threw a birthday party for the horseshoe crab, you'd have to put more than *300 million* candles on the cake. That's because horseshoe crabs have been swimming the seas for about 300 million years. *Whew*. You'd need a big cake!

It's hard to imagine anything being that old. But there are some very old species of creatures and plants that live on the Earth. They were crawling around for millions and millions of years *before* the dinosaur. (The dinos appeared about 200 million years ago.)

Some of these plants and animals haven't changed at all. Scientists call them "living fossils." The horseshoe crab, for example, looks the

same today as it did 300 million years ago.

The duck-billed platypus is about 180 million years old. But over the years it *has* changed. It has *adapted* to different environments. It has become specialized.

Why have these animals survived? Scientists think that either the animal's environment has stayed the same or the animal has adapted very well to changing environments.

So, grab your party hats and meet some of the world's oldest creatures. Oh, and by the way, if you wanted to throw a birthday party for the human race, you'd need about *2 million* candles for the cake!

PHOTO © RAYMOND A. MENDEZ/ANIMALS ANIMALS

Peripatus

The peripatus (Perry-PAH-tus) is a 500 million-year-old worm. It's hard to get excited about a worm. But they were around 250 million years *before* the dinosaur. They move around like caterpillars, but their bodies contain blood, like spiders.



Coelacanth

Coelacanth (SEE-la-canth) lived 350 million years ago. Scientists thought the fish had died out 70 million years ago. But in 1938, a living coelacanth was found.

This was a great find for scientists. Now, they could study the living fish. Instead of fins, the coelacanth has leg-like flippers. The six-foot fish looks like a cross between a fish and an amphibian—an animal that lives both in the water and on land, like a frog or a salamander.

PHOTO © ZIG LESCZYŃSKI/ANIMALS



Horseshoe Crab

The horseshoe crab is not really a crab. It is distantly related to the spider. Next time you see a horseshoe crab washed up on the beach, take a good look. You're looking at one of the Earth's oldest creatures.

Okapi

Okapis look like a funny mixture of giraffe, zebra and deer. The okapi hasn't changed much for 30 million years.

The back end of an okapi is striped like a zebra. They have big ears and a long neck. Their tongues are so long, they can wash their eyes with them!

Okapis live in the rain forests of Africa. They don't travel in herds, like their cousins the giraffe. Okapis are very shy animals. Scientists didn't even know they existed until the year 1900! ➡

PHOTO © R. VAN NOSTRAND/PHOTO RESEARCHERS



PHOTO © TOM McHUGH/PHOTO RESEARCHERS

Duck-billed Platypus

The platypus is about 180 million years old. It lives in Australia.

The platypus hangs out in the water—especially when it's hungry. They dive down and feed on crayfish, shrimp, snails and small fish.

When they swim, they keep their eyes, ears and nose tightly shut. They find their way around by using special sensors built into their bills. ➡





PHOTO © TOM McHUGH/PHOTO RESEARCHERS

Crocodile

Crocodylians (all different kinds of crocodiles and alligators) are anywhere from 160 to 195 million years old. There are over 20 different kinds. They live all over the world, but never far from swamps, lakes or rivers.

Crocodylians have leathery skins, covered by hard scales. Their nostrils are far forward—on top of a long snout. That way, they can breathe while under water.

Warm weather suits the crocs. Most live in the tropics. They spend a lot of time lying in the sun or floating in the water. But don't get too close. A lazy croc can move very fast.

Ginkgo Tree

Ginkgo trees have been around for 150 million years. Ginkgo is Chinese for "white nut." Small plum-like fruits grow on the tree. Inside the fruit is a kernel that tastes great when it's roasted. The Chinese grow ginkgos for these nuts.

But ginkgo has another name: "stinkbomb" tree. When the fruits fall from the trees, they give off a terrible smell, like sour butter.

Still, the ginkgo is a good city tree. It is very hardy. It has survived all kinds of diseases and insect attacks. And it doesn't seem to mind polluted air.

PHOTO © E.H. DEGGINGER/ANIMALS ANIMALS

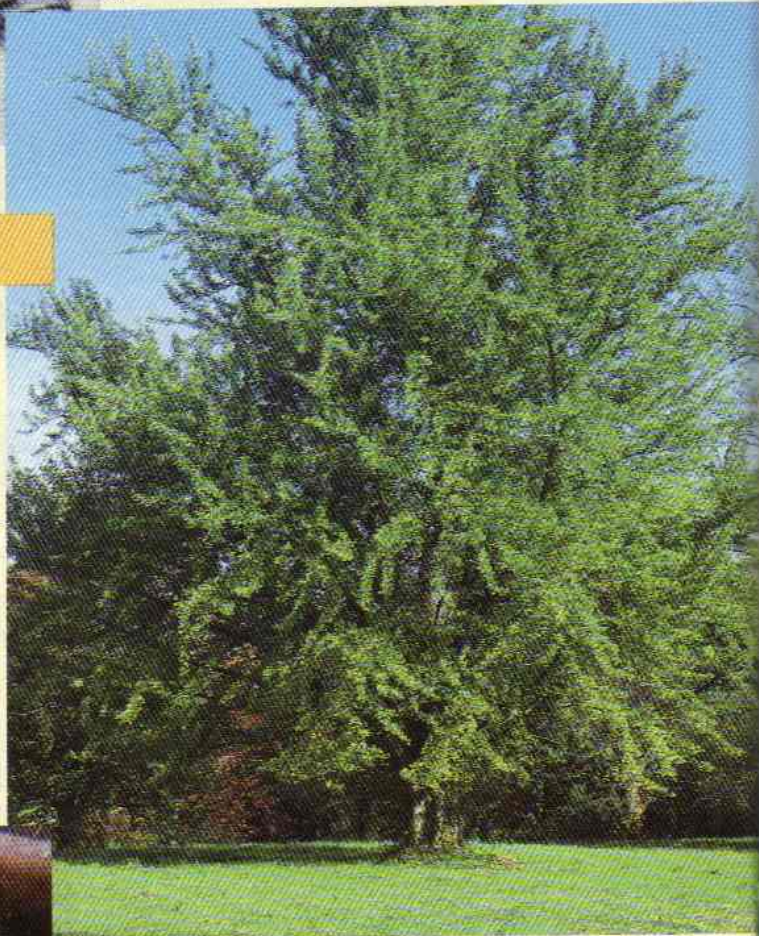


PHOTO © DOUG ALLEN/ANIMALS ANIMALS



Brachiopod

Brachiopod is a shellfish that is almost 600 million years old. Back then, it shared the sea with sponges, jellyfish and other simple animals. Today, the oceans are full of different kinds of plants and animals that are much younger than the brachiopod. Happy Birthday, you old clam, you!



PHOTO © TOM MCHUGH/PHOTO RESEARCHERS

Echidna

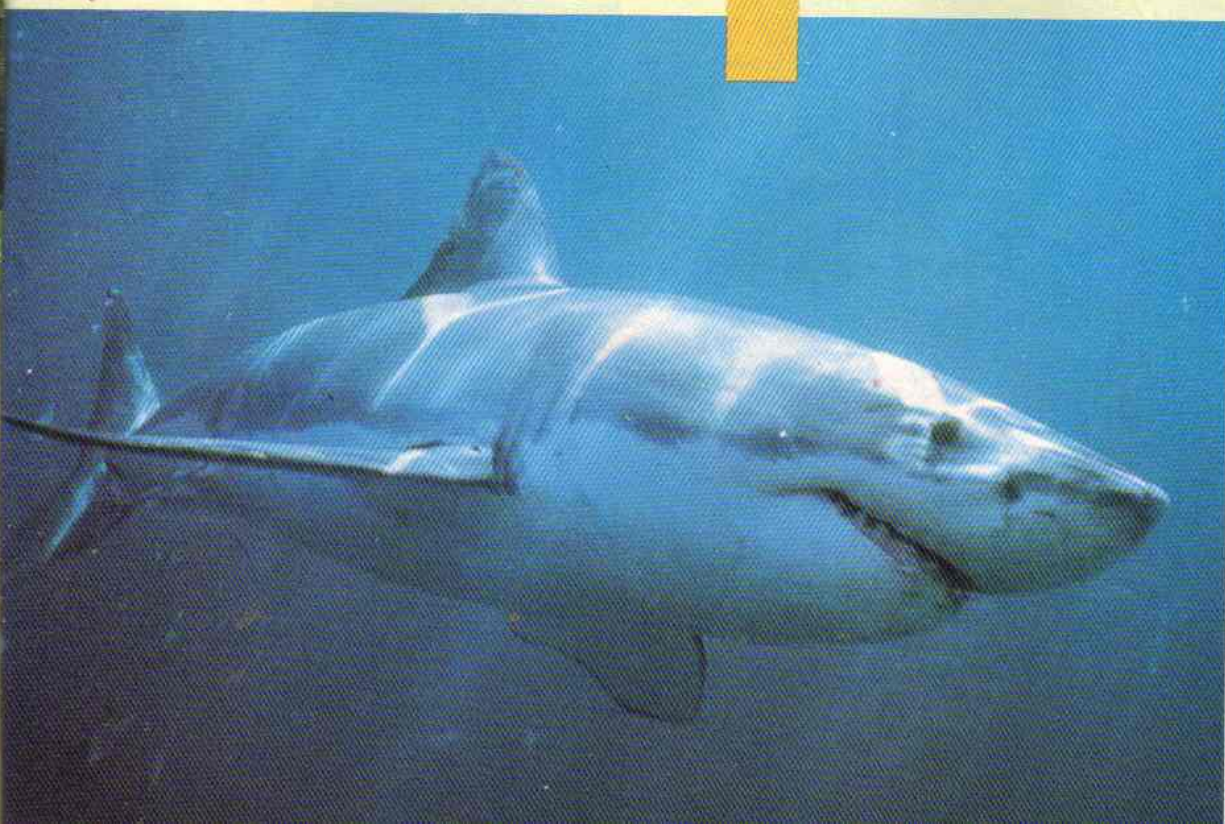
These spiny anteaters have been around for 180 million years. They live mostly in Australia. Both the echidna and the platypus look a lot like their ancient ancestors, but they have become specialized. Echidnas use their long, sticky tongues to eat ants, termites, insects and worms. And, they have developed strong muscles in their arms for digging.

When in danger, echidnas roll themselves up into a spiny ball. Their face, feet and hands are hidden inside the ball!

Sharks

There were sharks in the ocean long before the dinosaurs walked the Earth. But most modern sharks date back about 100 million years.

Sharks are hunters. They hunt in the open ocean and can live for long periods without food. The shark has a nasty reputation for eating people. But there are 350 kinds of sharks. Only a few kinds have been known to attack humans. Yikes! 🦈



YEARS
AGO

PLANT OR
ANIMAL

(APPROXIMATE)

30
MILLION



100
MILLION



150
MILLION



160-195
MILLION



180
MILLION



180
MILLION



300
MILLION



350
MILLION



500
MILLION



600
MILLION



HOW TO PLAY

PLACE GAME PIECES ON START.
ROLL DICE AND MOVE YOUR GAME
PIECE. IF YOU LAND ON A "TRUE
OR FALSE SQUARE," ANSWER THE
QUESTION, AND THEN CHECK YOUR
ANSWER. IF IT'S RIGHT, ROLL AGAIN.
IF NOT, YOUR FRIEND ROLLS. LAND
ON A "PICTURE SQUARE," AND
YOU LOSE A TURN. WHOEVER
REACHES THE END FIRST, WINS!

START

1. COLGATE JUNIOR IS
MADE JUST FOR KIDS.

TORF

2. RINSING YOUR MOUTH
WITH WATER IS AS
GOOD AS BRUSHING.

TORF

3. PLAQUE IS MADE OF
HARMFUL, STICKY
INVISIBLE GERMS
WHICH FORM IN
YOUR MOUTH.

TORF

4. TO BE SURE YOU
CLEAN YOUR TEETH WELL,
YOU SHOULD REPLACE
YOUR TOOTHBRUSH
EVERY 1-3 MONTHS.

TORF

5. JUST A FEW
SECONDS BRUSHING
IS ALL YOU NEED TO
CLEAN YOUR TEETH.

TORF

6. THE COLGATE JUNIOR
TOOTHBRUSH IS ONLY
FOR FUN.

TORF

oops!

YOU RAN OUT OF
TOOTHPASTE!
BACK 1 SPACE.

7. FLUORIDE IS
SOMETHING IN
TOOTHPASTE THAT HELPS
PREVENT CAVITIES.

TORF

8. YOU ONLY
NEED TO HAVE
YOUR TEETH
CLEANED BY YOUR
DENTIST OR HYGIENIST
ONCE A YEAR.

TORF

9. COLGATE JUNIOR IS THE
ONLY TOOTHBRUSH

YOU
BRUSH
BEDTIME
BACK 1 SPACE.

ANSWERS

1. TRUE - YOU SHOULD SPEND AT LEAST 1 MINUTE
BRUSHING TO GET TO ALL SURFACES
OF YOUR TEETH.
2. FALSE - THE COLGATE JUNIOR TOOTHBRUSH
WORKS GREAT AND IS FUN TO USE.
3. TRUE - THAT'S WHY COLGATE JUNIOR HAS FLUORIDE.
4. TRUE - TRUE
5. TRUE - AT LEAST TWICE!
6. TRUE - SO BRUSH ALL THE SURFACES OF YOUR TEETH.
7. TRUE - DON'T
8. TRUE - ONES.

SIMPLY CUT DICE WITH SCISSORS.
FOLD ALL TABS ALONG DOTTED
LINE. THEN TAPE "1" TO TAB A, "2"
TO TAB B, AND "3" TO TAB C.
(NOW YOU'RE READY TO ROLL!)



Colgate

OR C



te Junior Presents

CONSEQUENCES!

Game 2



10. COLGATE JUNIOR IS A FUN WAY TO GET TERRIFIC TASTE AND CAVITY PROTECTION FOR YOUR TEETH.

YOU DIDN'T SEE YOUR DENTIST THIS YEAR! BACK 2 SPACES.

11. PLAQUE GERMS CAN FORM EVERYWHERE IN YOUR MOUTH.

THE END

HEY KIDS! HERE'S A GAME JUST FOR YOU FROM THE TOOTHPASTE THAT'S JUST FOR YOU—COLGATE JUNIOR! AND GUESS WHAT? IF YOU SEND ME A TRUE-FALSE QUESTION ABOUT DENTAL CARE, I'LL SEND YOU A BRAND-NEW COLGATE JUNIOR T-SHIRT! SO YOU CAN BE A COLGATE SUPERSTAR, TOO! JUST REMEMBER TO INCLUDE YOUR NAME, ADDRESS, AND SIZE, AND MAIL TO ME, THE COLGATE SUPERSTAR, AT: P.O. BOX 1624, RIDGELY, MD 21681. GOOD LUCK, AND KEEP ON BRUSHING!

*WHILE SUPPLIES LAST.

OFFER EXPIRES DEC. '89.



THE BLOODHOUND GANG

A Taste for Crime

By Eric Weiner and
Decky Cheston

BLOODHOUND
AGENCY

It was a slow day. So far, the phone hadn't rung once. Skip, Vikki, and Ricardo were passing the time playing Crazy Eights. Then, suddenly, two things happened at once.

A man in a gray raincoat and dark glasses entered the office. And, outside, three large black cars turned onto the Gang's street.

The man closed the office door and locked it. "Listen," he said. "I need your help. My life is in danger."

The black cars pulled up outside, and the man froze. "Whatever you do," he said, handing Vikki a business card, "don't lose this. It's the only way you'll have to..."

He didn't finish the sentence. He was out the door, headed out the back. Outside, two men in gray suits and dark sunglasses were hurrying across the lawn towards the office door.

Ricardo held the door open as the two men barged in. "Special Agent Tarkington," one said, whipping out a badge. "Secret Intelligence."

"Agent Sims," said the other.

"Have you got the right place?" asked Vikki.

Tarkington answered her question with a question of his own. "That man that was just

here, which way did he go?"

"No idea," said Skip.

Sims was walking around the office as if he owned the place. "Did he give you anything?"

"Not a thing," answered Vikki.

"That's a shame," said Tarkington. "Look, you guys are detectives, aren't you? We've got to catch that man. How would you like to help?"

Going Nowhere, Fast

The two agents rushed the Bloodhound Gang into one of the cars parked out front.

"Can you at least tell us what this is all about?" Ricardo asked the men in sunglasses.

"Your visitor was one of our agents," said Tarkington. "He's trying to sell some of our top-secret information to a rival spy bureau."

"Where are we going?" demanded Vikki.

A voice crackled on Sims' walkie-talkie. "There's nothing, Sims. Repeat. Nothing."

Abruptly, Tarkington pulled the car over to the curb. "Okay, kids," he said. "Get out."

"I beg your pardon?" said Ricardo.

"You heard him," said Sims. "Out."

The black car took off, leaving the Gang outside of town. It took them two hours to walk home.

"Oh, no!" gasped Skip as they walked in. The office was a shambles. Furniture had been turned over. File drawers had been dumped on the floor.

"Look at this," moaned Ricardo. "They even dumped the dirt out of my potted plants."

"They must have been looking for something," murmured Vikki, studying the room.

"But what?" said Skip. "I thought they were looking for that guy."

"When they first came in, they asked us if he gave us anything," Ricardo reminded them.

"But he didn't," said Skip.

"But he *did*," corrected Vikki. "His card!"

She fished the card out of her pocket. It was thick and colored a light blue.

"Dick Raymond, Assistant Chemist," read Skip. "The Sweetie Corporation." On the back of the card two words were scrawled with an orange crayon: "juice" and "dip."

"Looks like a shopping list," said Skip.

Vikki took the card and studied it. "Why would someone need a list for just two things?"

"You're right," said Ricardo. "Maybe those two words—juice and dip—are a coded message that Tarkington and Sims were looking for!"

Skip put the two words together and looked for other words in the scrambled letters. "I get 'cup,' 'ice,' 'dice,' 'dupe,' and 'cupid,'" he said.

"Not much of a message."

Vikki studied the address on the card. "The Sweetie Corporation isn't too far from here," she said. "Let's pay them a visit. Something tells me those agents aren't agents at all."

Visit To Candyland

The Sweetie Corporation was a long one-story building. Among the many cars parked out front were three familiar black ones. The Gang headed for the front door.

"Can I help you?" asked the receptionist.

Ricardo said, "We're here for the tour."

"The tour?" asked the receptionist. "What tour?"

"Don't candy companies usually give tours?"

"Oh," said the man. "This is just the lab and business office. We don't actually make the candy here. That's done in Wyoming."

Vikki had stopped paying attention. She was staring down the long hall. At the far end, two men in dark suits were talking with a tall woman in a green dress. "Hey, guys," she said. "It's our friends, Tarkington and Sims."

The receptionist turned his head to see who she was pointing at. "Tarkington and Sims?" he said, laughing. "That's Carter and McHugh, the two vice presidents."

"Oh," said Vikki. "My mistake. And who's the woman in green?"

"Sheila Steinbach, the president. But you can't go back there. You need an appointment!"

But the Gang was already far down the hall.

"Hi," said Vikki, as they walked up to Carter and McHugh. "We're special agents from the Bloodhound Bureau. Mind if we have a word with you about messing up our offices?"

"You're right," said Sheila Steinbach, moments later. "We do owe you an apology for messing up your office. But I can explain."

Sheila was sitting behind a huge desk in her fancy office. Carter and McHugh—also known as Tarkington and Sims—stood by her side.

"The man who came to your office was Dick Raymond," Sheila said. "He used to work for us. His job was to come up with new flavors."

"The trouble is, he did his job too well. He →

ILLUSTRATIONS BY BOB PEPPER





ILLUSTRATION BY BOB PEPPER

came up with a formula for a jawbreaker so hard that it won't dissolve completely for three or four days."

"What's wrong with that?" asked Ricardo.

"It would cut into profits," said Carter, through clenched teeth. "By the millions."

"You see, people would buy that much less candy," added McHugh. "Because each candy lasts so much longer."

Just then, the intercom on Sheila's desk buzzed. A garbled voice said, "We've got him."

Sheila jumped to her feet. "I'm sorry," she said, "We've just been called into a meeting."

"Wait a minute!" cried Ricardo. But Sheila, McHugh, and Carter were out the door. They locked it behind them.

"Great!" sighed Skip. "Now what?"

"Sounds like they've got Raymond," said Vikki. "But they haven't got the formula."

"Neither have we," said Ricardo. "And we're locked in."

Vikki took out Dick Raymond's business card and held it to the light. "I'm sure the clue's here."

"Look at this," said Ricardo, opening the small fridge next to Sheila's desk. "Pretty fancy." He took out a container of orange juice and poured himself a glass.

"Give me some," said Skip, reaching for Ricardo's cup. But Ricardo yanked it away. The juice splashed and hit Vikki, and the card.

"Hey," said Vikki.

"Look at this card. It's blue. But where those drops of juice hit it, it's turning red."

"That's nice, Vikki," said Skip. "But I'm not in the mood for science experiments."

"Give me that," Vikki told Ricardo. And before he could answer, she dunked the business card in his drink. Then she slowly pulled the paper out. The dripping card was now entirely red. And, written over it in a darker shade of red, was a message: "The formula is in the Bayview Hotel, in the mailbox for Room #319."

Skip picked up Sheila's desk phone. "Detective Trowbridge," he said, "I hope you're in."

A Real Sweetie

Trowbridge's officers rounded up McHugh, Carter, and Steinbach and charged them with kidnapping, among other crimes. They also rescued Dick Raymond.

Back in the office, Ricardo said to Vikki: "I still don't understand how you knew to dip that card in my juice."

"It's because the drops of juice turned the blue paper red," explained Vikki. "That's when I realized that the business card was printed on litmus paper."

"Litmus paper?" asked Skip.

"Absorbent paper treated with a substance called litmus."

"Right! Litmus reacts with acids," said Ricardo. "Any acid will turn it red."

"But how," said Vikki, "did he get the message to turn a darker shade of red?"

"Simple," said a voice at the door. Dick Raymond walked in, grinning happily. He was carrying a large box. "I painted on the message with blue litmus solution. The letters on the paper had a higher litmus content, so they reacted more strongly to the acid in the juice."

"And this is to send you a simpler message," he said, pulling several shiny packages out of the box. "This is just to say, 'Thanks.'"

"Candy!" yelled Ricardo.

"Is it made with your new formula?" asked Vikki. "Will it last for several days?"

"It's not made with the formula, but there should be enough candy here to last for several months," said Raymond.

Skip laughed. "You don't know Ricardo!"

Special



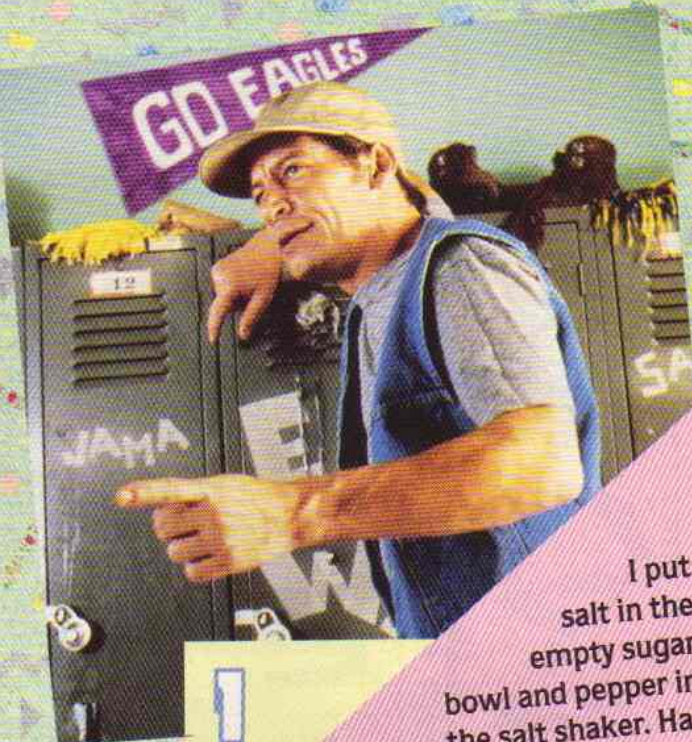
Section

TUNE IN TO SQUARE ONE TV ON YOUR LOCAL PBS STATION

HEY, VERN! APRIL FOOL!

Ernest switched the contents of the salt and pepper shakers, and the sugar bowl. Can you guess in which containers the foods ended up?

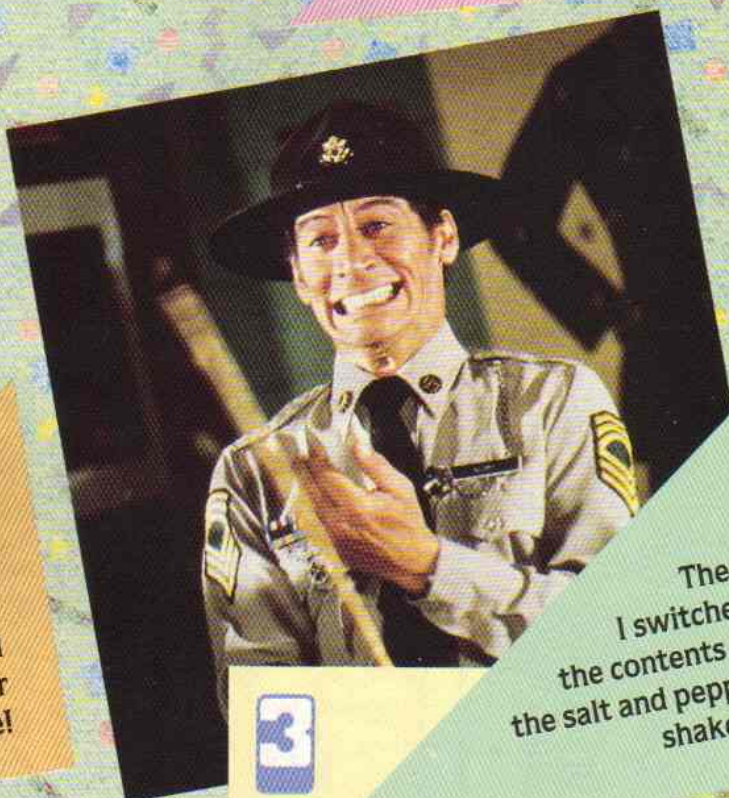
HINT: Draw a diagram of the three containers. For each step, write in the contents. It will help you to keep track. Answer on the Did It! page.



I put salt in the empty sugar bowl and pepper in the salt shaker. Ha!



After he did that, I dumped the sugar bowl into an empty pepper shaker, tee hee!



Then I switched the contents of the salt and pepper shakers.

At the Fake-O
Daily, our motto
is:
If your story isn't
true, we'll print
it!

The Fake-O Daily

Big Cheese: Eric Hot Dog

April 1, 1989

Top Banana: Liz Knish

Temperatures
will drop to 32°C
Brace yourself
for a blizzard!
Hint: 32°
Centigrade =
89.6° Fahrenheit.

**APRIL
FOOL'S
SPECIAL!**

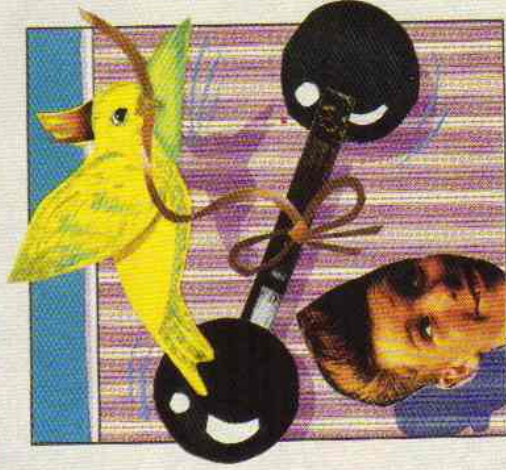
Find The Mistake In Each Of These Phony Stories!

AMAZING PARAKEET LIFTS WEIGHTS!

BIRDSEED, California—You know the health craze is getting out of hand when...parakeets start pumping iron!

"Squawky, my parakeet, kept pecking at my 25-pound barbell," explains Rusty Headgear, 12. "So I tied a string to the barbell. Right away Squawky picked up the barbell and flew around the room.

"People will say I faked this photo," Rusty admits. "But



think of it this way: A parakeet weighs about 2.5 ounces. So the 25-pound barbell was only 10 times the parakeet's weight."

**What's Wrong With
Rusty's Math?**

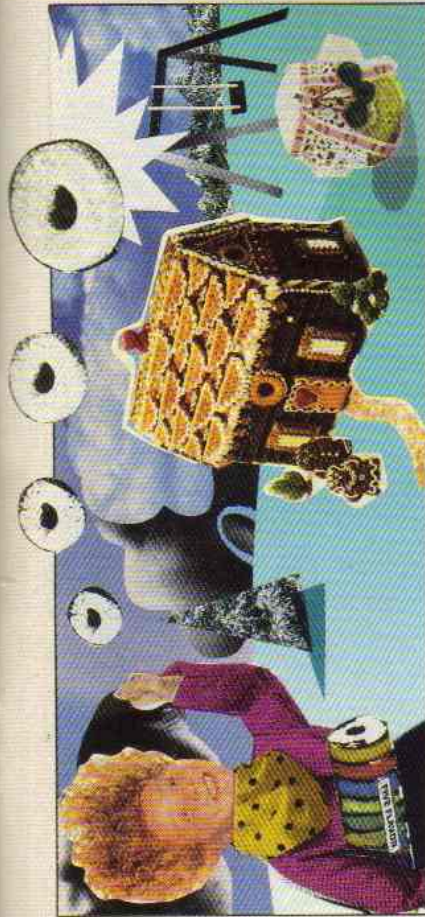
Hint: 1 pound = 16 ounces

Madonna Sets World Running Record

★★★★★★★★★★
SPEEDYFEET, England—Madonna has made a lot of runaway hit records. But yesterday, the U.S. rockstar made a runaway record of a different kind: She broke the world's record for the 400-yard dash!

Madonna was racing to escape some eager fans. "As she started running, I said to myself, 'Who's that girl?'" a bystander told the Fake-O Daily.





Alien Being Sends Birthday Present to Her Niece!

WAHOO, Ohio—A space capsule landed in the backyard of the Minkey's house Monday night, according to an alert neighbor.

"I saw a flash," said Marla Farla, the Minkey's 12-year-old neighbor. "Then this white capsule fell out of the sky and landed by Cindy Minkey's swing set."

Marla called the police. But when the police arrived, the tiny capsule was gone. All they found was a birthday card for 11-year-old Cindy Minkey and a small package.

"Dear Cindy," the card reads, "Your mom probably never told you, but she's from the star Xtron in the Nib Galaxy. I'm her sister. This morning when I woke up on Xtron I remembered that today is your birthday. So I decided to

send you this space capsule. Happy Birthday!

Love, Aunt Lulu

April 1, 1989"

"There is a star named Xtron in the Nib Galaxy," a local scientist told the Fake-O Daily. "I'm afraid we don't know much about it, except that it's very far away. In fact, it would take about four years for a capsule to travel from Xtron to Earth."

"I don't believe my mom is from outer space," said a shocked Cindy Minkey.

"It doesn't surprise me," said neighbor Marla. "The Minkeys are very strange!"

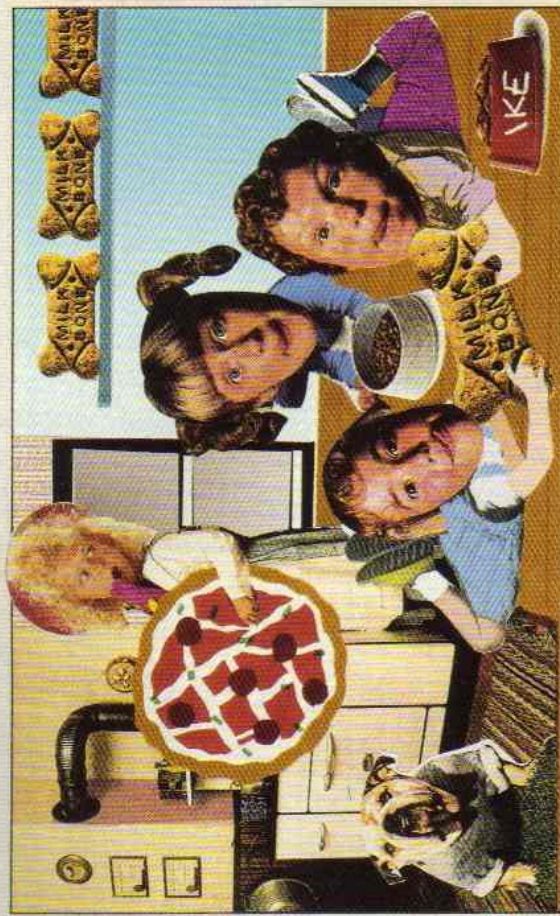
The card is a fake, planted by Marla Farla. Can you prove it?

Answers on The Did It! Page.

"I started my stopwatch and timed her. Then I measured the distance she ran. Blimey! She ran 100 meters in 30 seconds, wearing high heels. That's about 400 yards by U.S. measure."

400 yards in 30 seconds must be a world record.
What Mistake Did The British Bystander Make?

Hint: A meter is longer than a yard.



ILLUSTRATIONS BY JO LYNN ALCORN

Kids Hate Pizza!—New Poll Shows

Kids love pizza, right? Wrong! According to the latest poll, $\frac{3}{4}$'s of today's kids think pizza is gross, sloppy, yucky and pukey.

Here's how the study was done: One thousand kids from all over the U.S. were asked how they felt about pizza. One half of one quarter of those

kids said, "I don't like pizza." One quarter of one half said, "I'd rather eat dog food." $\frac{1}{2}$ plus $\frac{1}{4}$ equals $\frac{3}{4}$. That's $\frac{3}{4}$'s of today's kids!

Can You Figure Out What's Wrong With This Poll?!!!

**Hint: $\frac{1}{2}$ of $\frac{1}{4}$ = $\frac{1}{8}$
 $\frac{1}{4}$ of $\frac{1}{2}$ = $\frac{1}{8}$**

WHO STOLE FIRST BASE?

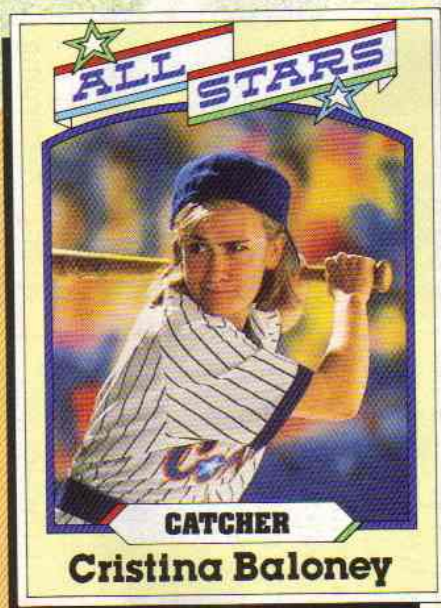
**A SQUARE
ONE
APRIL
FOOL'S
MYSTERY**

The Contact All-Stars were set to play their first game of the season. But somebody stole first base—*really* stole first base! Can you help the team solve this mystery so they can get on with the ball game?

HERE'S HOW: Look carefully at these baseball cards. Read what each player has to say. There's one player who doesn't have any proof that he or she is innocent. That's the person who stole first base—and played the joke on the rest of the team.
Answer on the Did It! Page.

1

"I was playing checkers with the pitcher, so I couldn't have stolen first base."



2

"I couldn't have stolen that base. I was out buying peanuts with the third baseman."



3

"Cristina and I were playing checkers. And I beat her for the 215th time in a row."



4

"Hey, I didn't do it! I went downtown with John and Slugger to buy some roasted peanuts."



5

"I was outside signing auto-graphs with Gary. Of course, more people asked for my autograph than for his. I'm the best player on the team."



6

"The first baseman borrowed my pen so he could go outside to sign auto-graphs. I went with him to make sure he gave me my pen back."



7

"I didn't steal that base. I was watching cartoons with Doug."



8

"Slugger and I went to buy some delicious roasted peanuts. I always eat six or seven bags before a game."



9

"Did somebody steal a base? Well, it couldn't have been me. I was with the left fielder."



HINT: Use this list and cross out the names of the players who can prove they are innocent. The one player left over is the thief.

~~Cristina Baloney~~
 Slugger McBash
 Ned Davis
 Rusty Kleets
 Ernie Weaver
 Gary Moneyback
 Sparky LeBunt
 John P. Nutshell
 Doug Out

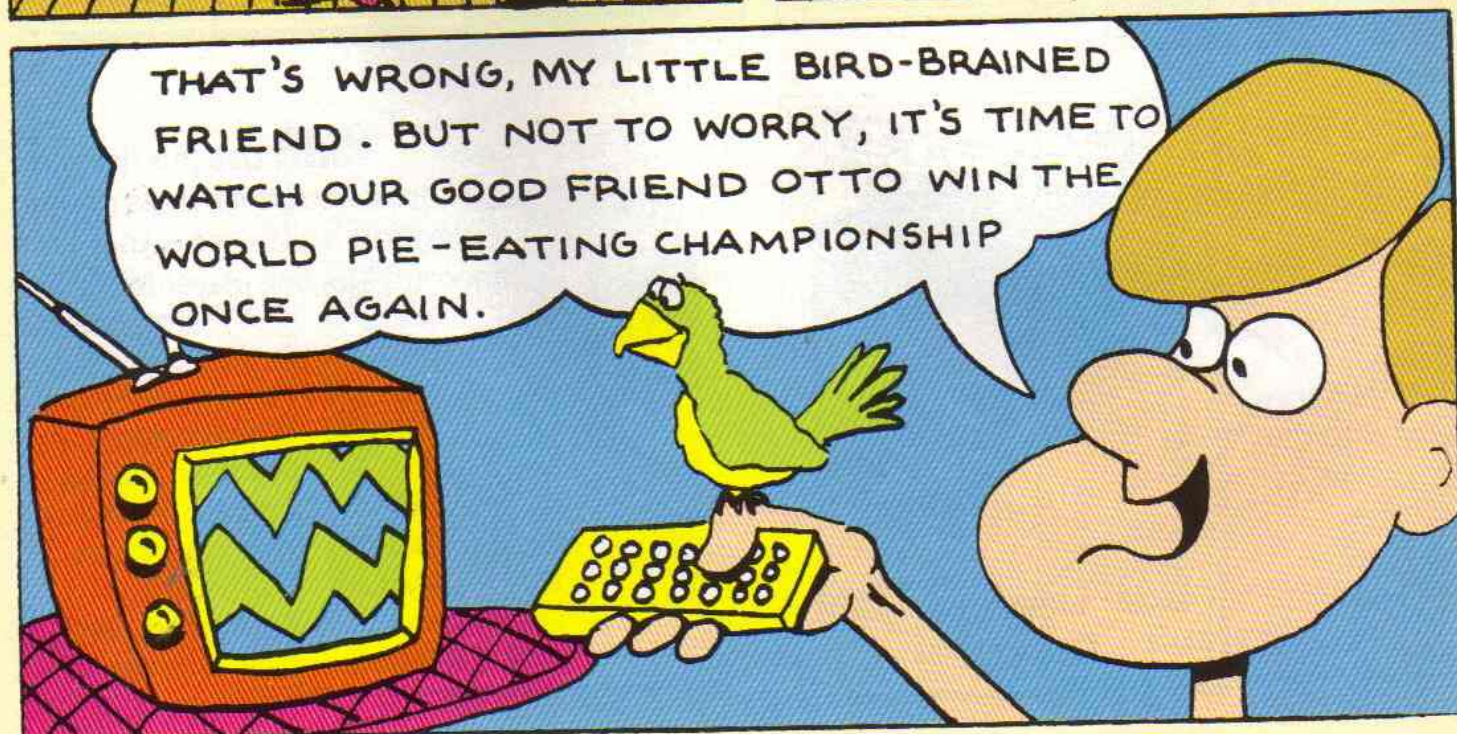
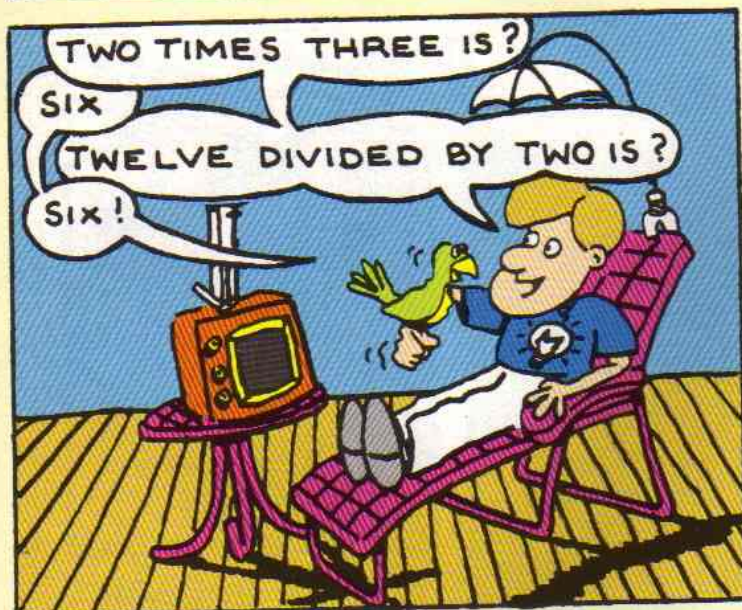
We did one for you. **Cris Baloney** is innocent. She says that she was playing checkers. And she can prove it because Ned Davis agrees that she was there.

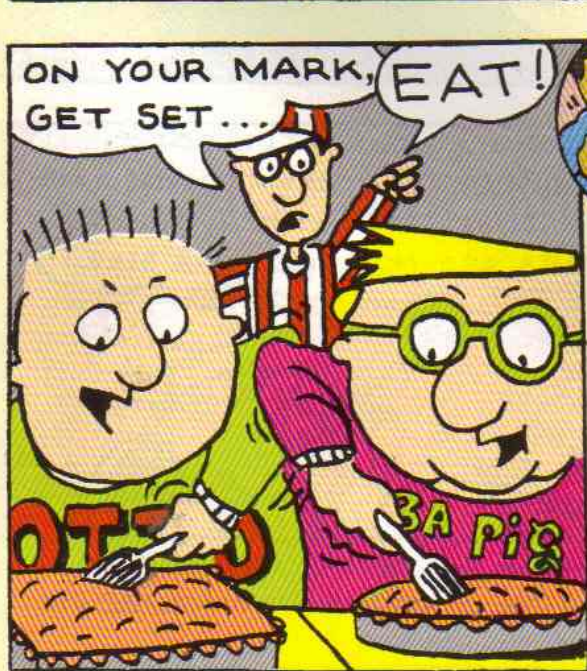
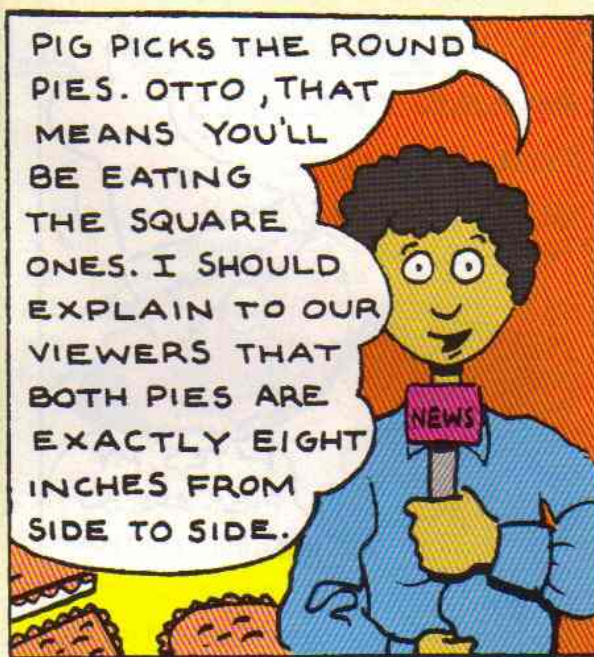
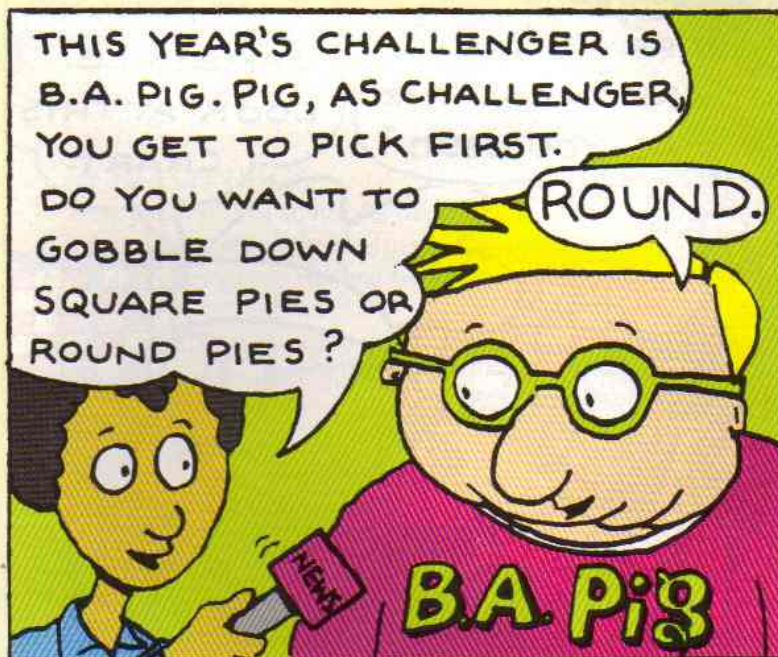
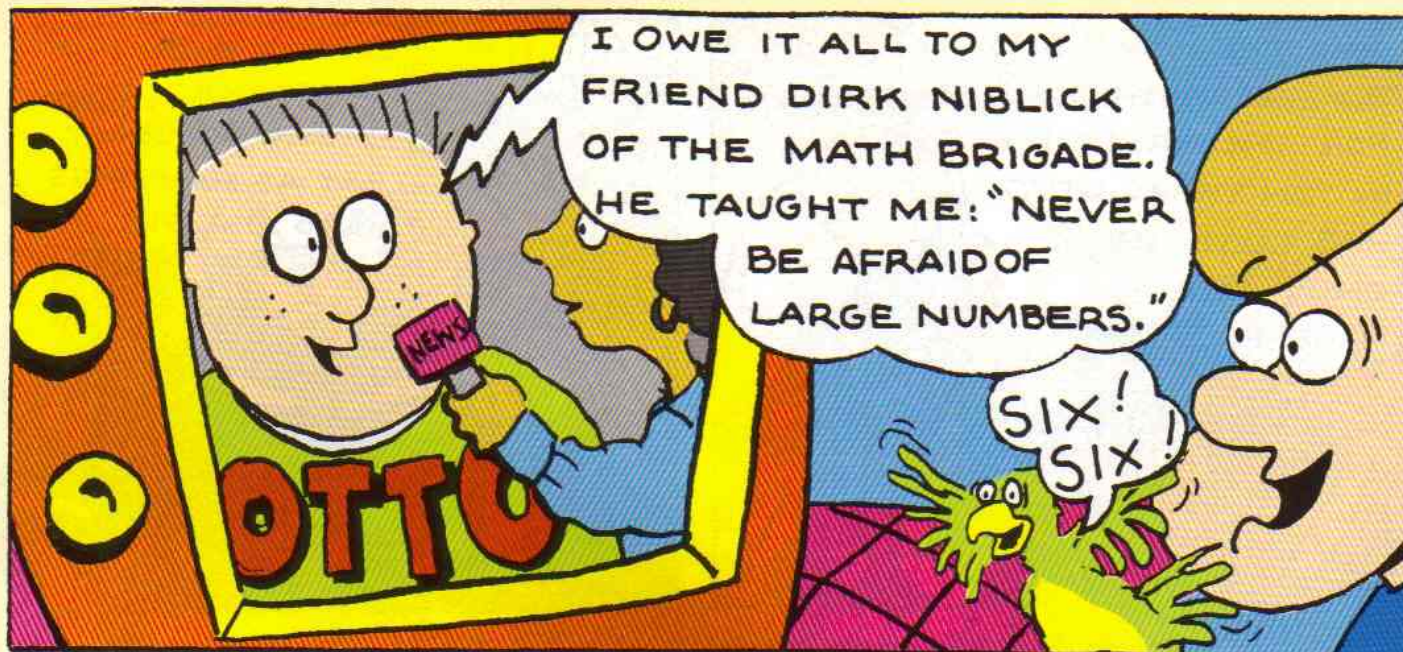


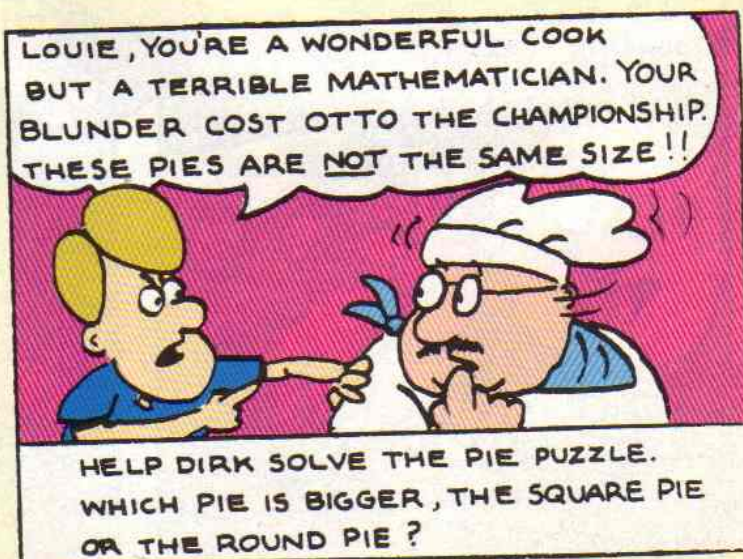
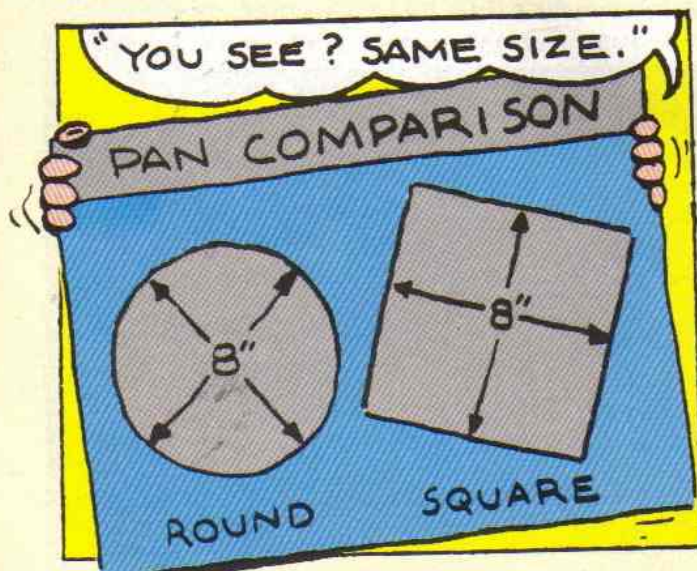
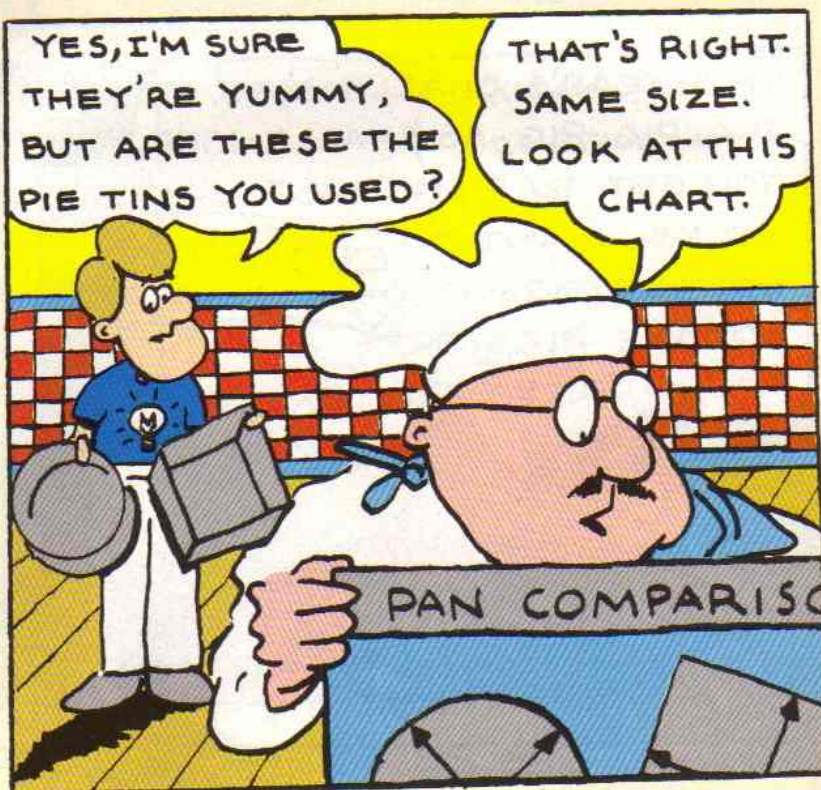
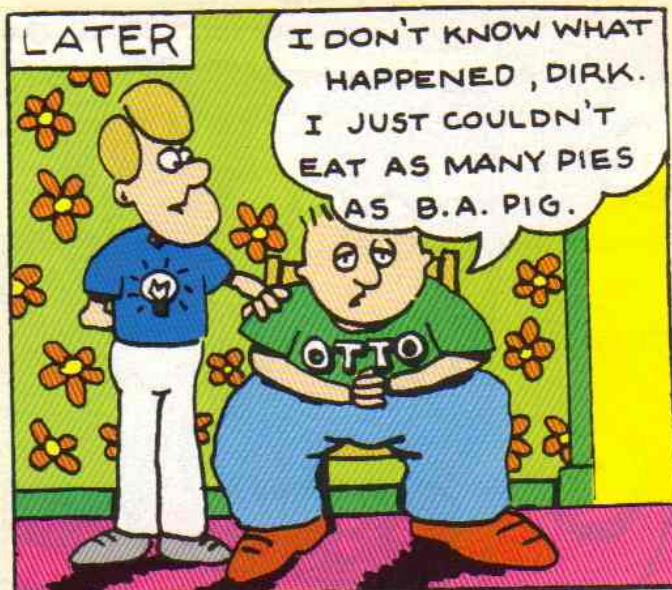
LT. DIRK NIBLICK

THE CASE OF THE PUZZLING PIES

STORY: RUSSELL MILLER ART: JIM JINKINS







ANSWER ON THE "DID IT!" PAGE.

Mail



MARY YOUNG DUARTE

Dear 3-2-1 CONTACT,

Last year I found science a little hard and your magazine helped me get a better grade the last two quarters.

I just want you to know that your magazine is great and everybody should get it.

Thanks a lot.

Reanna Lea Lundell
Clackamas, OR

Dear Reanna,

Thanks for your letter. We're glad CONTACT helped you do better in school, but you must have studied a lot harder too!

Dear CONTACT,

I am nine years old. I have been getting your magazine since I was six.

It's just that not everybody who gets 3-2-1 CONTACT has a computer so I think it would be nice to print some good books for people who like to read.

Rochelle Bourgault
Biddeford, ME

Thanks, Rochelle, we took your suggestion. You might have noticed that in the last few issues

we've been reviewing books. In fact there's a book review in this issue. And we promise there will be more of them in the future. We've also added reviews of board games, videos, and other items you can have fun with if you don't have a computer.

Dear Editor,

In your July/August 1988 issue, the "Short Shorts" article stated that the smallest shark in the world is the spined dogfish. "When full-grown it is just the size of a pencil—about 6 inches (15 cm.) long."

Well, I remembered that I had read about a dwarf shark that is 5 inches long.

Jonathan Becker
Bellevue, WA

Jonathan, when we got your letter we called Seaworld to get the answer. Jerry Goldsmith, Vice President of the aquarium, said that you may be right. Or we may be right. Mr. Goldsmith said the cookie-cutter shark may be the smallest shark! No one's really sure which shark is the smallest, not even scientists.

Dear 3-2-1 CONTACT,

In the June 1988 issue you had a game called "Dino Might." I was playing with my mother and I captured all of her pieces except for her dinosaur eggs (you can't capture the tar pit). What happens then?

Shaal Rivkin
Chicago, IL

Shaal, in "Dino Might," if one player has no movable pieces left (tar pit or eggs) they lose. If neither player has any movable pieces left, it's a tie. [CONTACT's game designer doesn't think this will happen very often, but we hope we've solved your problem.]

We Want Mail!

Dear Readers,

We love hearing from you. The questions, ideas and complaints we get help us make CONTACT a better magazine. So why not drop us a line? We can't answer every letter, but we do read them all. Send your mail to:

3-2-1 CONTACT: Letters
P.O. Box 40
Vernon, NJ 07462

The Slipped Disk Show

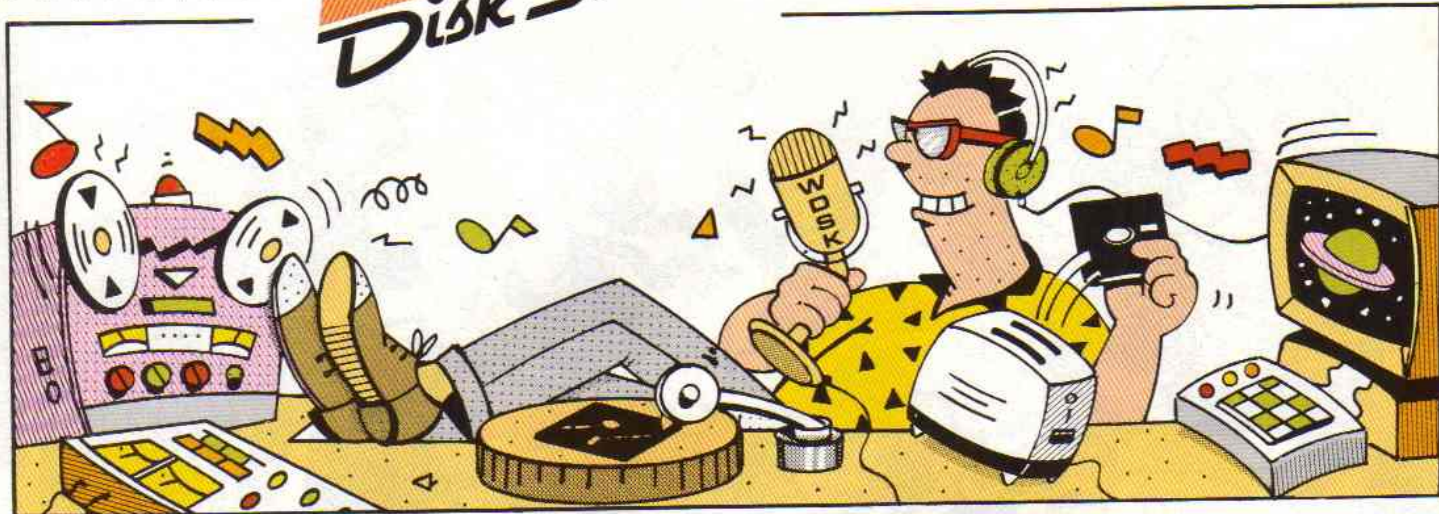


ILLUSTRATION BY CAMERON EAGLE

Greetings to all you keyboard commandos! It's baseball time and we're getting ready for another fun season with our local baseball team, the Tooterviller Typers. My dog, Floppy, is the team mascot and the shortstop. He's a great player, except he drools on the ball.

Let's take a swing at answering this question, which was thrown at us by **Dennis Hong**, of Champaign, Illinois:

"What is a computer virus?"

Dennis, I once saw a movie where a computer from another planet was about to take over the Earth. Then it came down with a virus that made it break out in spots, so it went to bed and the United Nations got scientists from around the world to feed it chicken soup.

But the kind of computer virus you're talking about is a computer program. It can take over and control other programs and can do a lot of harm. Here's how they usually work:

All computers need a kind of master program, called an "operating system," which is a list of instructions that control the basic operations of the computer. The operating system is on the first disk that you load into your computer after you turn it on.

A virus is a program that writes a copy of itself inside your computer's operating system. After that, whenever you start up your computer, the virus program is running things, not the original operating system. It takes someone with a lot of computer knowledge to write a virus program.

Computer viruses are spread by people who want to play tricks or damage other people's computers. They can do a lot of harm by destroying files and information. But they can't get into your computer unless someone puts them there, by giving you a disk with a virus on it, or by sending one to you through your modem. Even if they're meant as a "joke," they're not very funny.

Well, I really had a ball answering that one. Let's see if we can get a hit with this next question, which was pitched at us by **Jamie Bierig**, 10, of Seaside, Oregon. Jamie asks:

"Do cars have computers? What do they do?"

Jamie, I once knew a toaster that had a computer, but I used it mainly to play an adventure game called *English Muffins from the Planet Zorb*. Now, what was your question? Oh, right, cars.

Yes, most cars today do have at least one computer in their engines. These computers are tiny microchips that help control the workings of the car.

Computer chips are often used to control *fuel injection*. These computers have sensors that measure things like how fast the engine is going and what the outside temperature is. Then the computer decides how much fuel is sent to the engine.

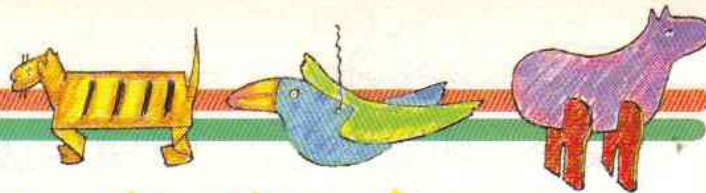
Computers also control *anti-lock brakes*. If a driver hits the brakes too hard, the wheels can *lock*. They stop moving completely, even though the car is still moving. This is very dangerous and can cause the car to skid out of control. But with anti-lock brakes, a computer chip will sense when the wheels are about to lock and then release the brakes just enough to prevent it.

And that about locks up this month's Slipped Disk Show. Floppy and I will be back next month, so if you have any computer-type question, send them to:

The Slipped Disk Show
3-2-1 CONTACT Magazine
1 Lincoln Plaza,
New York, NY 10023
 See ya soon!

Slipped Disk believes baseball is a game of centimeters.

Reviews



Books

The Wild Inside

by Linda Allison
Sierra Club Books
\$7.95

When it's raining outside and there's nothing much to do, you can turn to *The Wild Inside* to keep you from getting bored.

This book is filled with activities and experiments that will keep you busy for days. There are also neat nuggets of information

sprinkled throughout. For instance, did you know the first flush toilet was installed in 1595?

Most sections have places to write for Send Aways, but unfortunately

they aren't all for free.

Between writing and doing stuff, *The Wild Inside* may hold your interest even when the sun is shining! —Jonathan Rosenbloom



The Great Spaghetti Showdown

by Joel L. Schwartz Dell Publishing, \$2.75

Eugene is convinced that he's as skinny as a piece of spaghetti. He's also short. (The kids at his new school call him "Shorty.") Eugene doesn't have any friends so he spends a lot of time in front of the TV.

Then his mom signs him up at Cinekyd. It's a place where kids

make and star in their own movies. At Cinekyd, Eugene finds another kid who happens to share the same first name. Together, the two Eugenes make movies, have a lot of fun and get into trouble. It's good clean fun until...The Great Spaghetti Showdown.

—Liz Keyishian

Software

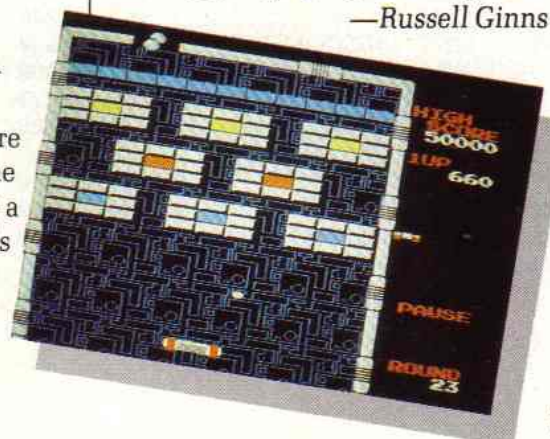
Arkanoid

For C64/128, Apple II and
IBM computers and Nintendo systems
Taito Software, \$34.95

Once you start playing this fast action video game, you might find it hard to quit. You're trapped in outer space, and the only way to get free is to clear away the screen—one brick at a time. Meanwhile, all kinds of strange objects swirl by, getting in your way and driving you crazy.

Arkanoid requires more joystick skill than brainpower. But it's a lot of fun, and there are enough levels to keep you playing for a long time.

—Russell Ginns



Basic Training

Animal Keeper

Did you ever want to run your own zoo? Or be a naturalist, studying animals from around the world? This program won't catch real animals for you, but it will let you collect information about animals.

This program is a database. When you type it in, you'll find there are facts about four animals stored in your files. (We chose four animals from the article on prehistoric creatures in this month's issue.) You can read about the animals, or you can start adding your own animals to the file. **NOTE:** When entering information, be sure not to use any commas.

You can also have the computer make up new animals, which you have to name. If you have a disk drive, you can save your files for the next time you run the program. If you don't have a disk drive, leave out lines 690-760 and lines 790 through 890.

The program is written for Apple II computers. To adapt it for IBM or Commodore Machines, follow the instructions after the program.

Apple II


```
10 DIM N$(30), H$(30), F$(30),
   Y$(30), C$(30)
20 D$ = CHR$(4)
30 GOSUB 1020
40 HOME
50 PRINT "WELCOME TO
   ANIMAL KEEPER"
60 PRINT "WOULD YOU LIKE
   TO:"
70 PRINT "(1) READ ABOUT
   ANIMALS?"
80 PRINT "(2) ENTER NEW
   ANIMALS?"
90 PRINT "(3) HAVE THE
   COMPUTER MAKE UP AN
   ANIMAL?"
```

```
100 PRINT "(4) SEE A LIST OF
   ANIMALS?"
110 PRINT "(5) SAVE YOUR FILES
   ON A DISK?"
120 PRINT "(6) LOAD OLD FILES?"
130 PRINT "(7) END"
140 PRINT: PRINT "CHOOSE ONE
   BY NUMBER"
150 INPUT X$: X = VAL(X$)
160 ON X GOTO
   180,390,500,610,680,780,910
170 GOTO 40
180 REM READ ABOUT
   ANIMALS
190 HOME
200 PRINT "WOULD YOU LIKE
   TO:"
210 PRINT "(1) CHOOSE AN
   ANIMAL"
220 PRINT "(2) LET COMPUTER
   CHOOSE"
230 PRINT "(3) RETURN TO MAIN
   MENU"
240 INPUT X$
250 IF X$ = "3" THEN 40
260 IF X$ = "1" THEN 300
270 P = INT (RND (1) * Q) + 1
280 A = P:B (1) = P:B(2) = P:
   B(3) = B(4) = P
290 GOSUB 920: GOTO 190
300 PRINT: PRINT
310 PRINT "ENTER NAME OF
   ANIMAL"
320 P = 1: INPUT A$
330 IF A$ = N$(P) THEN 280
```

```
340 IF N$(P) = "XXX" THEN 360
350 P = P + 1: GOTO 330
360 PRINT: PRINT "NO SUCH
   ANIMAL ON FILE"
370 PRINT "PRESS RETURN TO
   CONTINUE"
380 INPUT A$: GOTO 190
390 REM ENTER NEW
   ANIMAL
400 Q = Q + 1: HOME
410 PRINT "NEW ANIMAL"
420 INPUT "NAME:"; N$(Q)
430 INPUT "WHERE FOUND:";
   H$(Q)
440 INPUT "FOOD:"; F$(Q)
450 INPUT "AGE OF SPECIES:";
   Y$
460 INPUT "SPECIAL
   CHARACTERISTICS:";
   C$(Q)
470 INPUT "IS EVERYTHING
   CORRECT? Y/N"; A$
480 IF A$ = "N" THEN Q = Q - 1:
   GOTO 400
490 N$(Q + 1) = "XXX":
   GOTO 40
500 REM RANDOM ANIMAL
510 A = 0: FOR X = 1 TO 4
520 B(X) = INT (RND (1) * Q) + 1
530 NEXT X
540 GOSUB 920
550 PRINT: INPUT "DO YOU
   WANT TO SAVE THIS
   ANIMAL? Y/N"; A$
560 IF A$ <> "Y" THEN 590
```




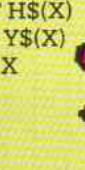

ILLUSTRATIONS BY MARTIN LEMELMAN



```

570 Q = Q + 1: INPUT "ENTER
NAME OF ANIMAL: ";
N$(Q)
580 H$(Q) = H$(B(1));
F$(Q) = F$(B(2))
590 Y$(Q) = Y$(B(3));
C$(Q) = C$(B(4))
600 N$(Q + 1) = "XXX";
GOTO 40
610 REM LIST ANIMALS
620 HOME
630 FOR X = 1 TO Q
640 PRINT N$(X): NEXT X
650 PRINT
660 INPUT "WHEN DONE,
PRESS RETURN"; A$
670 GOTO 40
680 REM SAVE FILES
690 PRINT D$; "OPEN
ANIMFILE"
700 PRINT D$; "WRITE
ANIMFILE"
710 FOR X = 1 TO Q
720 PRINT N$(X): PRINT H$(X)
730 PRINT F$(X): PRINT Y$(X)
740 PRINT C$(X): NEXT X
750 PRINT "XXX"
760 PRINT D$; "CLOSE
ANIMFILE"
770 GOTO 40
780 REM LOAD OLD FILES
790 Q = 1
800 PRINT D$; "OPEN
ANIMFILE"
810 PRINT D$; "READ
ANIMFILE"
820 : INPUT N$(Q)
830 IF N$(Q) = "XXX" THEN
890
840 : INPUT H$(Q)
850 : INPUT F$(Q)
860 : INPUT Y$(Q)
870 : INPUT C$(Q)
880 Q = Q + 1: GOTO 820
890 PRINT D$; "CLOSE
ANIMFILE"
900 Q = Q - 1: GOTO 40
910 END
920 REM PRINT ROUTINE
930 HOME
940 PRINT "ANIMAL NAME: ";
N$(A)
950 PRINT "WHERE FOUND: ";
H$(B(1))
960 PRINT "TYPE OF FOOD: ";
F$(B(2))
970 PRINT "AGE OF SPECIES: ";
Y$(B(3))
980 PRINT "SPECIAL
CHARACTERISTICS: ";
C$(B(4))

```

```

990 PRINT : PRINT "WHEN
DONE, PRESS RETURN"
1000 INPUT R$
1010 RETURN
1020 REM LOAD DATA
1030 FOR X = 1 TO 4
1040 READ A$: N$(X) = A$
1050 READ A$: H$(X) = A$
1060 READ A$: F$(X) = A$
1070 READ A$: Y$(X) = A$
1080 READ A$: C$(X) = A$
1090 NEXT X
1100 Q = 4: N$(5) = "XXX"
1110 RETURN
1120 DATA ECHIDNA,
AUSTRALIA AND NEW
GUINEA, ANTS TERMITES
AND WORMS, 180 MILLION
YEARS, WHEN IN DANGER
THEY ROLL INTO A BALL,
THEY LAY EGGS
1130 DATA DUCK-BILLED
PLATYPUS, AUSTRALIA,
CRAYFISH SHRIMP SNAILS
AND FISH, 180 MILLION
YEARS, THEY LAY EGGS
HAVE DUCKLIKE BILLS
AND WEBBED FEET
1140 DATA OKAPI, AFRICAN
RAIN FOREST, PLANTS, 30
MILLION YEARS, THEY
HAVE ZEBRA STRIPES AND
A NECK LIKE A GIRAFFE
1150 DATA COELACANTH,
INDIAN OCEAN,
UNKNOWN, 350 MILLION
YEARS, HAS LEG-LIKE FINS

```

IBM

Change all HOME statements to CLS. Change or add these lines:

```


690 OPEN "ANIMFILE" FOR
OUTPUT AS #1
700 FOR X = 1 TO Q
710 A$ = N$(X): WRITE #1,A$
715 A$ = H$(X): WRITE #1,A$
720 A$ = F$(X): WRITE #1,A$
725 A$ = Y$(X): WRITE #1,A$
730 A$ = C$(X): WRITE #1,A$
740 NEXT X
750 A$ = "XXX": WRITE #1,A$
760 CLOSE #1
800 OPEN "ANIMFILE" FOR
INPUT AS #1
810 INPUT #1,A$: N$(Q) = A$

```

```

820 IF N$(Q) = "XXX" THEN 880
830 INPUT #1,A$: H$(Q) = A$
840 INPUT #1,A$: F$(Q) = A$
850 INPUT #1,A$: Y$(Q) = A$
860 INPUT #1,A$: C$(Q) = A$
870 Q = Q + 1: GOTO 810
880 CLOSE #1
890 REM

```





Commodore 64/128

Change all HOME statements to PRINT CHR\$(147). Change or add these lines:

```

690 OPEN 3,8,3,"(a0:
ANIMFILE,SEQ,W"
700 FOR X = 1 TO Q
710 PRINT #3,N$(X)
720 PRINT #3,H$(X)
730 PRINT #3,F$(X)
740 PRINT #3,Y$(X)
750 PRINT #3,C$(X)
755 NEXT X
760 PRINT #3, "XXX"
765 PRINT #3: CLOSE 3
800 OPEN 3,8,3 "(a0:ANIMFILE,
SEQ, R"
810 INPUT #3, A$: N$(Q) = A$
820 IF N$(Q) = "XXX" THEN 880
830 INPUT #3, A$: H$(Q) = A$
840 INPUT #3, A$: F$(Q) = A$
850 INPUT #3, A$: Y$(Q) = A$
860 INPUT #3, A$: C$(Q) = A$
870 Q = Q + 1: GOTO 810
880 PRINT #3: CLOSE 3
890 REM

```

Send Us Your Programs

If you've written a program you'd like us to print, send it in. If we like it, we'll print it and send you \$25. Include a note telling us your name, address, age, T-shirt size and type of computer.

All programs must be your own original work. We cannot return programs. Please do not send disks.

Send your program to:

Basic Training
3-2-1 CONTACT Magazine
1 Lincoln Plaza
New York, NY 10023



Extra!

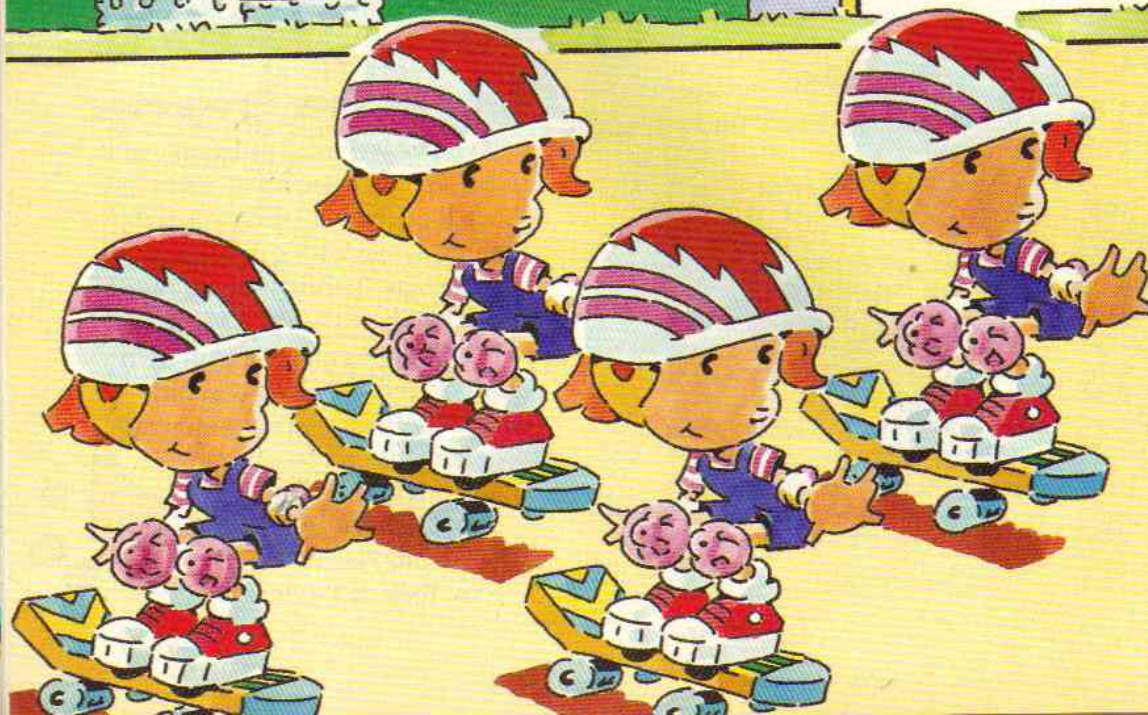
By Russell Ginns

Spring has sprung. The sky is blue. So here's some Extra! fun for you.

Spring Cleaning

Laura and Jonathan's attic is full of old tennis shoes, light bulbs and newspapers. So they've decided that it's time for spring cleaning. Help them find their way from upstairs to the trash cans in front of their house.

Answer on the Did It! page.



Skate Alike

Julie and her friends formed a skateboard club. They all bought matching skateboards, helmets and kneepads. Can you spot the one person who doesn't look exactly like the other members of the club?

Skate to the Did It! page for the answer.



Prehistoric Puzzle

You've read about some animals that have been around since prehistoric times. Now see if you can find them in this puzzle.

Unscramble each name and write it correctly in the boxes below each one. (Flip back to our story if you need help.) The letters in the shaded boxes will spell a prehistoric animal that is no longer around.

The answer is living on the Did It! page.

The First Contest Of Spring

Finally! Spring is here! And you can help us celebrate by joining our springtime poetry contest. It's easy to do. Just complete the last two lines of this poem:

THE BIRDIES ARE SINGING,
IT'S SPRINGTIME AT LAST...

Our three favorites will win Contact T-shirts. Send your poem along with your name, address and T-shirt size to:

It's Spring! 3-2-1 CONTACT
P.O. Box 40
Vernon, NJ 07462



—Did It!—

Hey Vern! April Fool!

The joke's on Ernest—nothing happened. There's salt in the salt shaker, pepper in the pepper shaker.

Fake-O Daily

Today's Weather

32°C = 89.6°F. That's bathing suit weather, not snowshoe weather.

Amazing Parakeet

Rusty's bird weighs 2.5 ounces. 10 x 2.5 ounces is 25 ounces, not 25 pounds.

Pizza Poll

$$1/8 + 1/8 = 2/8 = 1/4$$

Only 1/4 of the kids hated pizza, not 3/4.

Madonna

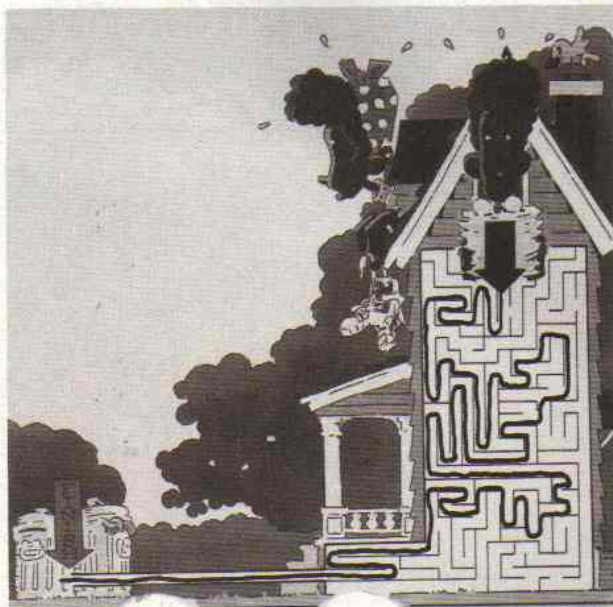
Madonna ran 100 meters. That's about 100 yards, not 400 yards.

Birthday Greeting

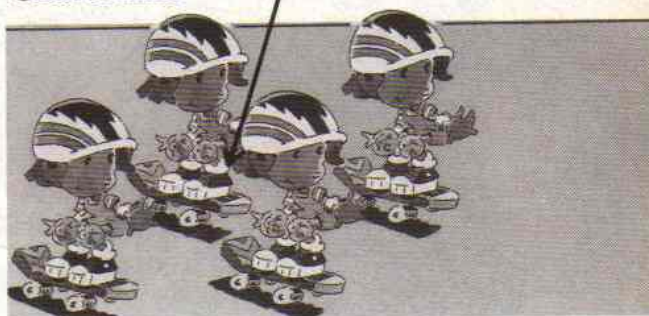
Marla Farla should have dated the card April 1, 1985. (It should have taken four years to reach Earth.)

Extra!

Spring Cleaning



Skate Alike



Prehistoric Puzzle

ECHIDNA, OKAPI, GINKGO, COELACANTH, PLATYPUS, SHARK, PERIPATUS, CROCODILE.

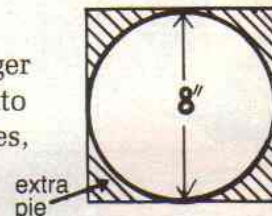
Answer: DINOSAUR

Who Stole First Base?

The thief is Rusty Kleets, the shortstop.

Puzzling Pies

The square pies were bigger than the round pies. If Otto had been eating round pies, he would have eaten $11\frac{1}{2}$ pies to B.A. Pig's 10.



Next Month!

Here are some of the neat features you'll find in the May 1989 issue:

Back to the Wild

Centers to help injured wild animals are cropping up all over the U.S. Get an inside look in this feature.

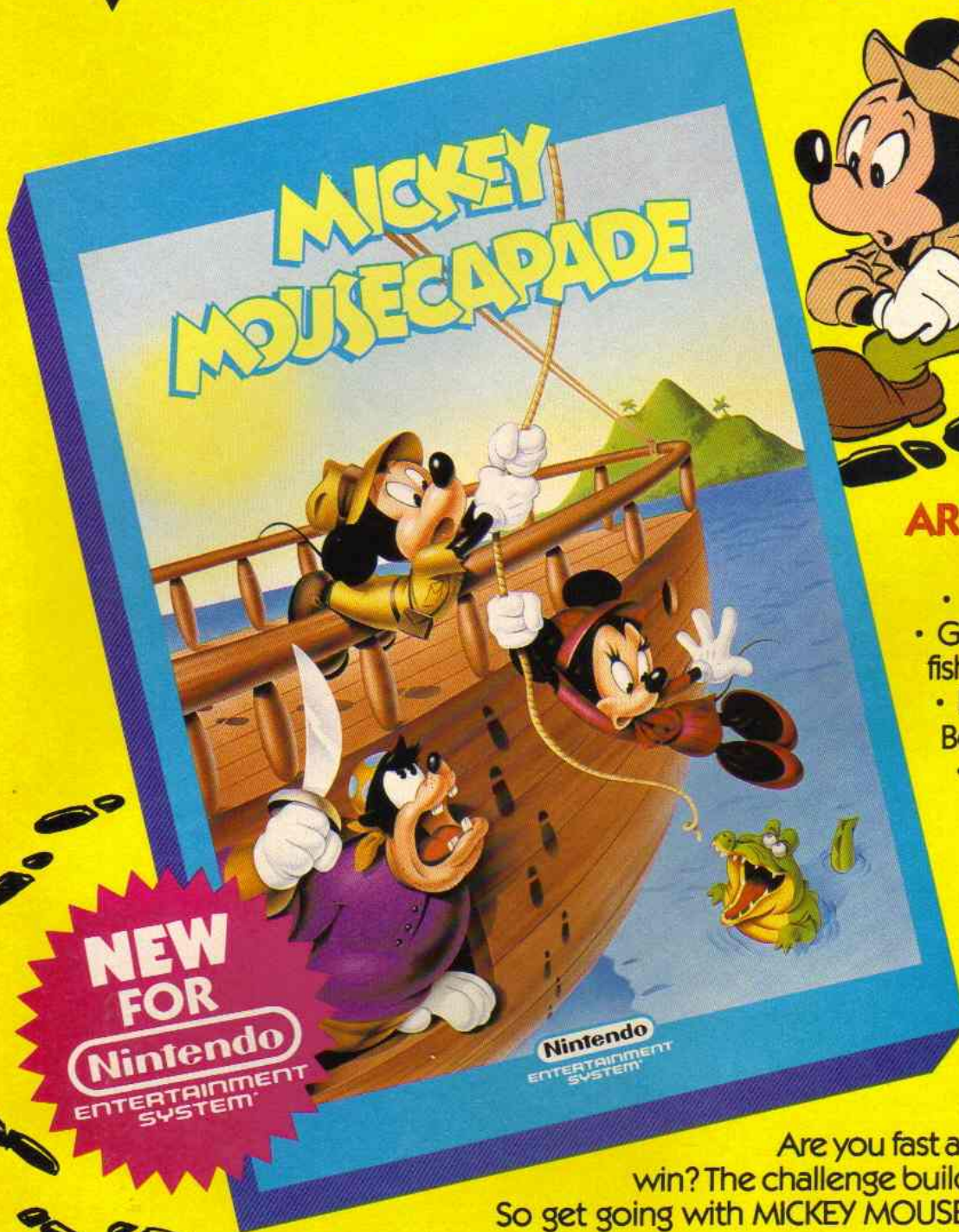
Sniffers and Tasters

Meet someone who gets paid to slurp soft drinks and nibble on brownies—a taste tester. CONTACT goes behind the scenes as we introduce you to chemists who cook up new flavors.

And Much, Much More!

WOW!

MICKEY AND MINNIE IN AN EXCITING NEW GAME ADVENTURE!



ARE YOU READY FOR...

- Falling spiders!
- Giant snakes! • Flying fish!
- Hidden treasures!
- Pirates! • Alligators!
- Bouncing blue things!
- And more!

TEAM UP WITH...

Mickey and Minnie in the first Disney game for Nintendo! Race with them as they rescue a MYSTERY FRIEND!

Are you fast and clever enough to win? The challenge builds as your skills grow! So get going with MICKEY MOUSECAPADE today!

© 1988 The Walt Disney Company

WARNING!

THIS GAME MAY BE HARD TO
GET AWAY FROM YOUR FAMILY!

This incredible Disney Mousecapade game is brought to you exclusively by

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CREATE YOUR OWN ADVENTURE WITH THIS
SUNKIST® FUN FRUITS®
 REAL FRUIT SNACKS

R L I B

Ask your friends for words to fill in the blank spaces.
 But don't let them see what you are writing until you're
 finished. Then read your story to them out loud.

Yesterday, I went for a walk through the Fun Fruits
 Forest. I wanted to visit _____, who lives in a
 _____ near there. I brought some Fun Fruits
 with me, just in case I wanted to have a snack on the way.

When I passed a _____,
 I decided to stop and _____ for a while. But
 while I was sitting there, a _____ jumped
 out from behind a _____ and started to
 _____ at me. Then I remembered that I had
 brought my _____. I gave some to the
 _____. They were shaped like _____.
 and they tasted like _____. The
 _____ liked them so much that it started to
 _____. I picked up my _____
 and ran off.

My friends all thought that I was _____,
 but I got to _____ before it was time to
 _____.



LOOKS
 LIKE
 FUN!

AND SO
 IS FUN
 FRUITS
 NEWEST
 FLAVOR:
 STRAW-
 BERRY
 BANANA.



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